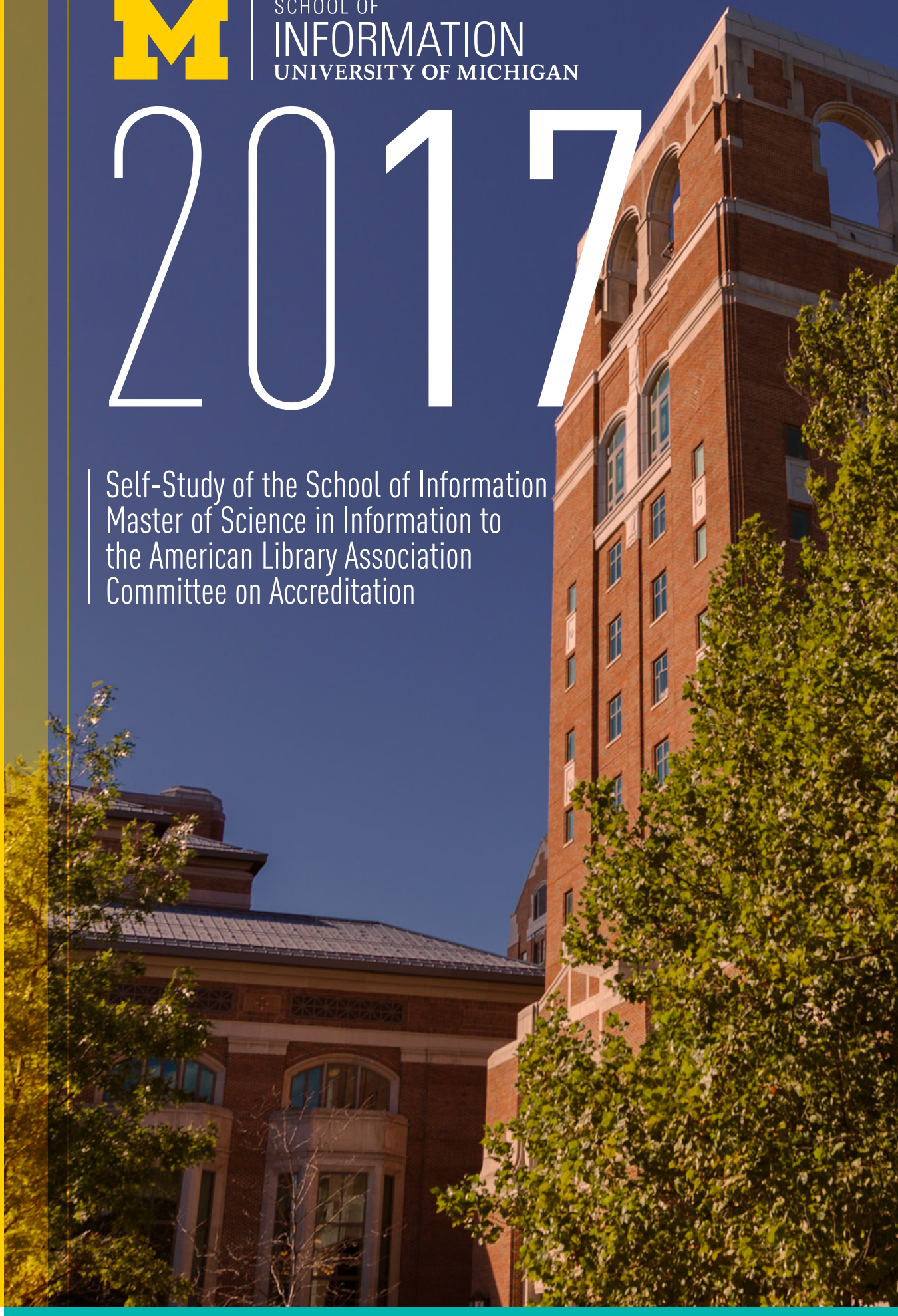
SCHOOL OF
INFORMATION
UNIVERSITY OF MICHIGAN

2017

Self-Study of the School of Information Master of Science in Information to the American Library Association Committee on Accreditation



School organized and maintained for the purpose of graduate education in information:

- School of Information

Principal Administrator, School of Information:

- Thomas A. Finholt, Dean

Parent Institution:

- University of Michigan

Chief Executive Officer, University of Michigan:

- Mark Schlissel, President

Chief Academic Officer, University of Michigan:

- Paul Courant, Interim Provost

Degree Program Brought Forward for Re-Accreditation:

- Master of Science in Information

University of Michigan is accredited by the Higher Learning Commission (HLC), an independent corporation that holds membership in the North Central Association of Colleges and Schools (NCA).

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Brief description of program being presented for accreditation:

In this self-study, the University of Michigan School of Information (UMSI or the School) submits its Master of Science in Information (MSI) degree program for American Library Association (ALA) reaccreditation. There have been a number of significant structural changes in the School since the 2010 accreditation. In 2010, the primary degree was the MSI. The only other degree was the PhD, and its Program was small. In previous accreditation processes, accrediting the MSI Program was essentially accrediting the entire School minus the PhD Program. In this self-study, that is no longer the case.

In 2017, UMSI now has four programs: (1) MSI Program, (2) Master of Health Informatics (MHI) Program (jointly administered with the School of Public Health), (3) Bachelor of Science in Information (BSI) Program, and (4) PhD in Information Program.

The PhD Program accommodates a wide range of scholarly pursuits at the intersection of people, information, and technology. Because UMSI faculty come from a wide range of disciplines, the PhD Program is highly interdisciplinary, encouraging students to tread beyond traditional disciplinary boundaries in their quest to understand and improve the ways in which information is collected, organized, preserved, analyzed, shared, and used. In 2010, the PhD Program had about 30 students. Since 2012, the PhD Program has averaged 53 students per year. Doctoral students are required to serve as graduate student instructors (GSIs) for at least two courses, and many meet this requirement by GSI assignments to courses in the School's MSI and BSI programs. The PhD Program is highly competitive; for the 2015 incoming class, 108 applications were received, 22 students were accepted, and 13 students enrolled.

The Master of Health Informatics (MHI) Program, established in 2012, is a partnership between the U-M's School of Information and School of Public Health (SPH). The MHI Program's goals are to develop a new kind of information professional who helps clinicians, patients, and consumers navigate and manage increasingly more readily

available streams of health information. Defining features of the program are its strengths in consumer informatics, population health applications, and system-related human and organizational issues. All MHI courses that originated in UMSI are also available to MSI students and vice versa. Now in its fourth year of existence, the MHI Program admitted 31 students for the 2015 incoming class and has graduated 33 students to date.

UMSI began offering undergraduate education in 2008 as an equal partner in an initiative with the College of Engineering and College of Literature, Science, & the Arts (particularly Statistics) at the University of Michigan (U-M). In 2014, UMSI launched its own Bachelor of Science in Information (BSI) Program, an upper-level undergraduate degree that U-M undergraduates complete during their junior and senior years. This richly interdisciplinary Program encompasses the social and technical aspects of the digital revolution, giving students the opportunity to gain breadth and depth through rigorous coursework, frequent interaction with faculty, high-level practical experiences, and research engagement. BSI students focus almost exclusively on coursework in one of three defined BSI-Program paths—information analysis, user experience design, or social media—or they develop an academic plan for themselves in conjunction with faculty advisors. The BSI Program's first class of 2015 graduated 25 students, and the most recently admitted class of 2018 has 120 students.

The mission of the Master of Science in Information (MSI) Program is to prepare students to understand the human, ethical, and technological dynamics of our constantly evolving information society; excel as professionals in a variety of information environments; lead in designing and building new user-centered solutions to society's most challenging information needs; and use their expertise to serve their communities, their professions, and the world.

MSI students must meet various requirements for graduation while amassing 48 credits for the MSI Program. Under the current curriculum, MSI students must fulfill both program and specialization requirements. Students must choose at least one of these specializations:

1. Archives and Records Management (ARM)
2. Human Computer Interaction (HCI)
3. Information Analysis and Retrieval (IAR)
4. Information Economics for Management (IEM)
5. Library and Information Science (LIS)
6. Preservation of Information (PI)
7. Social Computing (SC)

Alternatively, students can choose the Tailored option and design their own academic plan under the guidance of a faculty advisor and with the advisor's approval of their written plans.

The MSI Program is in the midst of transitioning from its current specialization-based curriculum to a post-specialization curriculum that enlists mastery courses to designate requirements through prerequisite coursework, hereafter referred to in this report as named future curriculum or mastery-based curriculum. Nonetheless, the MSI Program remains a 48-credit program with a significant engaged-learning component that gives students relevant experience in their desired area of expertise. The impetus for the

transition as well as the planning, evidence, decision-making, and stakeholders involved in defining UMSI's future curriculum are described in standards II.1, II.5, II.6, and II.7.

The faculty own the curriculum and each academic program has its own program committee populated by faculty and a faculty program director who reports to the Associate Dean for Academic Affairs (ADAA). Since all faculty can potentially teach in any of the four programs, all faculty are eligible to serve on any program committee. The School's several academic program committees are responsible for curriculum, course approvals, policy setting, overseeing recruitment and admissions policies, and selecting students for scholarships.

The MSI Program is a broad-based professional program. In 1998, shortly after the School was re-chartered as the School of Information, ALA's executive director and the head of its Office of Accreditation invited us to submit our entire MSI Program for reaccreditation. We did, successfully reaccrediting the entire Program in 1998, 2003, and 2010. The MSI Program is a single integrated degree program, aimed at meeting the needs of current and future information professionals. Students in any career path or specialization can take courses in any of the other specializations if they have the required prerequisites. MSI graduates work in a variety of settings. Many work in libraries—public, academic, school, and special—but others will work in archives, museums, other cultural institutions, not-for-profit service organizations, governmental agencies, and a wide variety of industrial settings.

Along with the growth in the number of programs, UMSI has grown from approximately 400 to 600 students across its four programs. In 2017, the MSI remains the largest program (320 students) but the BSI is growing rapidly (for example, up to 175 students in the 2015-2016 academic year, the second year of its existence). The MSI Program has also changed: the Library and Information Science (LIS) specialization was the largest along with the Human-Computer Interaction (HCI) specialization. Now HCI is the largest specialization, and it is predominantly composed of international students. The LIS specialization remains in the School but is experiencing the decline in applications that many other ALA accredited programs are experiencing. The LIS specialization remains overwhelmingly composed of domestic students. Although this introduction to the self-study places the MSI Program within the larger context of the School, we seek reaccreditation for the MSI Program only.

The School's growth has necessitated administrative changes, including the addition of new managerial and executive roles and a more formalized leadership structure. We describe these in chapter V, standards V.1 to V.5. Scanning these standards may better contextualize the various individual and group actors engaged in the systematic planning processes discussed in chapter I. In May 2016, UMSI welcomed a new dean, Thomas A. Finholt, PhD. He has been at the School since 1997 as a Research Professor, Professor (tenured), Associate Dean for Research, and Associate Dean for Academic Affairs. His selection as Dean brings stability and deep knowledge of the U-M administration and inner-workings of the School. The rest of the Leadership Team (LT) is composed of the Associate Dean for Research and Faculty Affairs (Paul Resnick, PhD), Associate Dean for Academic Affairs (Elizabeth Yakel, PhD), Assistant Dean for Academic and Student Affairs (Judy Lawson), and Chief Administrative Officer (Scott Staelgraeve). The LT meets weekly, engages in planning retreats, and works together to further the mission of the School and ensure that each of the academic programs fulfills its own goals and students learn the core competencies. Dean Finholt has brought new priorities to the

School and has initiated a more nimble strategic planning process. His strategic priorities for the School are: (1) diversifying faculty and student bodies, (2) increasing access to UMSI programs, (3) focusing on community engagement in instruction and research, and (4) conducting research in the public interest, such as making social media safe and productive. The LT, staff, and faculty take the Dean's strategic priorities into account as they engage in their yearly goal-setting activities. More detail on strategic planning is presented in standard 1.

Dean Finholt and the Leadership Team are data driven. They use data from the myriad administrative systems hosted by the University (e.g., central personnel and student databases) as well as internal systems and data collection activities (e.g., detailed financial information or student outcome data) to better administer the School and assess whether each of the four programs is achieving its goals. Data are also used to guide decisions on budgets, curricular initiatives, and extracurricular efforts and were used in the creation of this self-study. Table P1 outlines the types of data used in the self-study by standard.

Table P1: Evidence to be Presented in the 2017 UMSI Accreditation Self-Study

Standard I: Systematic Planning	Standard II: Curriculum	Standard III: Faculty	Standard IV: Students	Standard V: Administration
UMSI strategic plan	Description of the curriculum processes	Curricula vitae	Description: Offices of Student Affairs and Career Development	Description: Administrative and leadership structure and organizational charts
Description of the strategic planning process	Descriptions, syllabi, and learning objectives for all courses in MSI program	Faculty research profiles	Demographic data on students (gender, race, part time/full time, etc.)	Committees, membership, and minutes of meetings of relevant groups
UMSI Mission, Values, and Principles	Specialization by student (including change of specialization)	List of research grants submitted and funded	Academic achievement (average time to degree, average course load)	Descriptions of UM-wide opportunities for faculty, staff, and students
UMSI Policies and Procedures	Advising process documentation	Promotion and tenure guidelines and procedures	Financial aid/ funding levels and process documentation	Technology, support, labs, equipment, network, and their evaluation
MSI program goals and objectives and core competencies	Curriculum Committee and MSI Program Committee minutes	Procedures for Faculty Annual Review (FAR) (part of planning process)	Admissions processes, informational materials for students, etc.	Budget data (broken down by function, unit, etc.)
List and descriptions of constituents served by UMSI	Student tools (Tracking & Advising Plans)	Staff who support faculty and roles	Student satisfaction survey data	Budget planning documentation

Standard I: Systematic Planning	Standard II: Curriculum	Standard III: Faculty	Standard IV: Students	Standard V: Administration
Discussion/Examples of data driven decision-making	Analyses of specialization paths in the curriculum	Description of faculty development opportunities	Career placement survey data for recent graduates	Staff performance evaluation procedures
Program-level objectives: mapping to student learning outcomes etc.	Summaries and examples of student work	Faculty demographic data (data warehouse)	Practical Engagement Program survey data	Current facilities (space, location, allocation, ADA compliance, etc.)
Internal Diversity, Equity, and Inclusion Planning Process	Summaries and examples from student showcase	Provost policies on promotion and tenure, sabbatical, etc.	Master's student handbook and policies	Space planning documentation
Project I (Inspiration, Innovation, Impact)	Student surveys on knowledge and skills	Faculty research (U-M Office of Research)	MSI student groups and activities	List of staff and their roles
University Plan for Diversity, Equity, and Inclusion (if available)	Surveys/statements from employers re: students	U-M policies (Standard Practice Guide)	Description of master's student involvement in administration	Information on the U-M Library System
University-wide Diversity, Equity, and Inclusion Process	Criteria to evaluate student performance		Student enrollment data (Data warehouse)	Provost documentation and procedures for budgeting and planning
	Course evaluation data		Employer survey	U-M policies (Standard Practice Guide)
	Course catalog and syllabi		Student and alumni focus group data	External resources for faculty and students
	Degree Audit Tool for Students			
	Student and alumni focus group data			
	Employer survey			

The 2010 External Review Panel (ERP) report identified three issues: (1) recruitment of a new dean to replace the current dean, (2) recruitment of faculty and a commitment to maintain a strong LIS specialization, and (3) ongoing curriculum development to ensure that necessary classes are regularly available as needed by the students. Each of these issues is addressed in this self-study. Since the 2010 ERP report, we have had two successful dean searches and our transitions to new leadership have been smooth (see standard V.3.2). UMSI has also successfully recruited new faculty in the LIS area as well as in other areas to support the entire MSI Program (see standard III.1.2). MSI curriculum reform is a theme of this self-study and discussed throughout, particularly in standard I.1.2 and in chapter II.

The primary goal of our professional Master of Science in Information (MSI) degree program is to prepare students to be agents of change in a wide range of information-intensive organizations. To foster a quality education that achieves MSI program goals, we focus on three themes in this self-study: (1) engaged learning; (2) diversity, equity, and inclusion; and (3) MSI curriculum reform. While we have been engaged in these activities over the past several years, they are also forward-facing goals which will guide us into the future.

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Standard I
SYSTEMATIC PLANNING

I.1 The program's mission and goals, both administrative and educational, are pursued, and its program objectives achieved, through implementation of an ongoing, broad-based, systematic planning process that involves the constituencies that the program seeks to serve.

Through its Master of Science in Information (MSI) degree, the University of Michigan School of Information (UMSI or School) presents an interdisciplinary, integrated, and innovative educational program for new information professionals. Within that degree, all students have the opportunity to pursue an academic plan to further their personal, educational, and career goals; achieve depth in their chosen area of concentration; and participate in engaged learning opportunities in the classroom and in co-curricular activities. The MSI degree has been offered in its current form since 1996 to serve the educational needs of future information professionals in a rapidly changing information world. We submit the MSI Program for reaccreditation.

I.1.1 Continuous review and revision of the program's vision mission, goals, objectives, and student learning outcomes.

Since the previous accreditation, UMSI has revisited the School's vision, mission statement, and developed a set of guiding principles. This was in response to several factors. First, we grew from two degree programs (the MSI and PhD in Information) to four, adding the Master of Health Informatics (MHI) Program in 2012 and the Bachelor of Science in Information (BSI) Program in 2014. Second, there were demographic changes in the student population resulting in a more international student body. Third, many of the founding faculty of the School have retired, passed away, or left the U-M, and new faculty were hired. These three factors necessitated both revisions in the vision and mission and a reaffirmation in which new faculty and students could participate and own.

Along with the school-wide reaffirmation and remaking of our core statements, the addition of the two new degrees necessitated the creation of academic program committees for each program. That, in turn, led to the need to develop individual mission statements, goals and objectives, and learning objectives (which we refer to as

competencies) for each program. In previous self-studies, the mission of the School was the mission of the MSI Program. This is no longer true. In the remainder of this standard, we begin by the discussing the process of changing the School's vision and mission and the development of a set of guiding principles. We then address the mission, goals and objectives, and core competencies (learning objectives) for the MSI program.

Former Dean (2010-2015) Jeff MacKie-Mason led the process of reviewing and revising UMSI's vision and mission statements and the development of a set of basic principles. The revisions were done in conjunction with the development of a 5-year strategic plan for the School which ran from 2013 to 2017. Therefore, the relationship between the vision and mission and the goals we worked under for most of the self-study period are well aligned. In 2012, UMSI reaffirmed the vision and mission for the entire School, resulting in this new vision statement:

> ***The School of Information delivers innovative, elegant and ethical solutions connecting people, information, and technology. When there is a need for world-changing information discoveries, we will be there.***

We also reaffirmed and reworded the mission statement, resulting in this new mission statement:

> ***We create and share knowledge so that people will use information—with technology—to build a better world.***

Mission and vision statement revisions were led by the Dean and the Leadership Team (i.e., the School's primary managerial and decision-making body with the Dean presiding over two associate deans, an assistant dean, and the chief administrative officer (CAO)). Faculty and staff contributed to the revision process through written comments and/or in open forums with facilitated discussion. Student leaders, alumni, employers, and the External Advisory Board (EAB) were also involved in the process. The Leadership Team (LT) approved the final text. Our School's vision and mission statements infuse all our activities: teaching and learning, research and scholarship, engagement and outreach.

The LT followed up by developing this core set of core of guiding principles:

- *We share a passion for the fundamental intertwining of people, information, and technology.*
- *We share a defining idea: to understand and improve interactions between people, information, and technology, we must combine scientific expertise in all three.*
- *We share a willingness to take risks: risks in our teaching, research, and service.*
- *We are progressive and forward-looking, and have been for 80 years.*
- *We are welcoming and diverse. We work together in community.*
- *We have a lot of fun.*

Underlying the School's mission, vision, and guiding principles is our deep-seated belief in the power of information to enrich and improve people's lives. A more complete history and the articulation of the School's mission, vision, and principles are available on our website at si.umich.edu/aboutsi/history-and-mission.

With the growth of degree programs at UMSI, the dean created faculty-led committees that oversee the direction of each program. The MSI Program Committee consists of (1) a faculty chair appointed by the associate dean for academic affairs (ADAA), (2) three to five faculty members appointed by the ADAA, (3) ADAA (ex officio), (4) two master's students elected by the School of Information Master's Association (SIMA), (5) a staff member from the Office of Student Affairs (OSA) for information coordination and student services expertise, and (6) a staff support member for note-taking, recordkeeping, issuing reminders, duplicating materials, etc. The MSI Program Committee took the lead in developing the MSI Program's mission statement, goals and objectives, and set of core competencies (learning objectives) that encompass student learning outcomes for that program. The MSI mission statement asserts:

The master's degree program prepares students to:

- *Understand the human, ethical, and technological dynamics of our constantly evolving information society*
- *Excel as professionals in a variety of information environments*
- *Lead in designing and building new user-centered solutions to society's most challenging information needs*
- *Use their expertise to serve their communities, their professions, and the world*

MSI program goals were established by the MSI Committee in the 2013-2014 academic year in response to the School's overall strategic planning process.

The goals of the MSI Program are to:

1. *Recruit, admit, and yield a student body that is invested in the UMSI mission, is prepared to take advantage of the learning opportunities at UMSI, forms a diverse and valuable cohort for each other, and meets the quality expectations of the faculty.*
2. *Deliver an educational experience in and outside the classroom that provides competitive advantage in the marketplace, creates a sense of social identification with the School and among each other, instills a professional identity, provides both salient and strong curriculum, and provides both salient and strong curriculum.*
3. *Ensure that our graduates achieve initial placement in the best positions available in their fields and become leaders of their chosen fields during their careers.*

In addition to the goals for the MSI Program, the MSI Program Committee developed a set of core competencies or learning objectives that largely reflect the intentions of the current curriculum but are now guiding the curriculum reform launching in fall 2017. The competencies were an outgrowth of the School's strategic planning and program goal setting process (see standard I.4 for details on this process). This process required all academic programs to establish a set of core competencies that could be measured. The MSI Program Committee drafted the MSI Program Core Competencies Statement. The chairs of all the academic programs discussed their draft competency statements and gave each other feedback. They also shared their draft statements with the ADAA for feedback. The MSI Program Committee made several iterations of its statement until the LT approved the final version. In this report, Table I.1's left column gives the MSI Core

Competencies Statement and its right column cites key components of UMSI's current (C) and future (F) MSI curriculum where the Competencies Statement is achieved. All components are tagged with a C, F, or both C+F designating whether they pertain to the current (C) or future (F) MSI curriculum; see standards II.1b and II.1c for details on both current (C) curriculum and future (F) MSI curriculum.

Table I.1. MSI Core Competencies Statement

All MSI Students will be able to:	Key Components of UMSI's Current (C) and Future (F) MSI Program
1. Communicate clearly in written, visual, and oral formats	Orientation's Information Challenge (II.1c) | F Foundations course 501 (II.2.1 to II.2.6) | C Elective courses (appendix II.3) especially 501, 514, 519, 520, 523, 529, 531, 534, 538, 548, 549, 551, 552, 554, 570, 580, 581, 582, 612, 614, 617, 618, 620, 622, 627, 629, 631, 632, 636, 637, 639, 640, 641, 643, 647, 649, 655, 658, 661, 663, 665, 675, 684, 689 | C+F Practical Engagement Program (II.1c & II.3b) and related course 690 | C+F Citizen Interaction Design Program (II.1c) | C+F Entrepreneurship Program (II.1c) | C+F Michigan Makers Program (II.1c) | C+F Global Information Engagement Program (GIEP) (II.1c) and related course 691| C+F Securing Internships using iTrack (appendix II.9) | C+F Master's Thesis Option Program (II.3b, IV.5.2) | C+F CDO career resources and workshops (IV.2b) | C+F ExpoSItion (II.5c) Career Fair (II.5c) Networking Fair (II.5c) Participation in student groups (II.5c & IV.5.5)
2. Use an ethical framework to guide decisions and actions	Orientation (II.3a) | C+F Foundations course 501 (II.2.1 to II.2.6) | C Electives with Ethical Issues content (Table II.10 & appendix II.3) | C+F Practical Engagement Program (II.1c & II.3b) | C+F Citizen Interaction Design Program (II.1c) and related courses 529 & 538 (appendix II.3) | C+F GIEP (II.1c) and related course 691| C+F CDO career resources and workshops (IV.2b) | C+F
All MSI Students will be able to:	Key Components of UMSI's Current (C) and Future (F) MSI Program
3. Articulate underlying principles of their chosen field	Online Orientation Forum (II.3a) | C+F Information mentors (II.5c) Orientation (II.3a) | C Electives with Principles content (Table II.8 & appendix II.3) | C+F Academic advising (IV.2a, IV.2b, IV.4a)
All MSI students will exhibit the following four capacities by the time they graduate. These are expressed as goals with specific competencies	Key Components of UMSI's Current (C) and Future (F) MSI Program (continued)

All MSI Students will be able to:	Key Components of UMSI's Current (C) and Future (F) MSI Program
Goal 1: Solve complex problems that involve People, Information, and Technology => competencies (knowledge and skills) required to get to this goal) a. Ability to state a problem b. Articulate a strategy for addressing the problem using tools and frameworks from their training (e.g. tool signifies usability analysis or a theoretical framework, data analytics) i. Determine aspects that are people, information, or technology in the problem space ii. All students have to be able to identify the constraints in the space where the problems exists c. Decomposition of a problem into its component parts d. Feasibility e. Design solution or path forward	Orientation's Information Challenge (II.1c) | F Electives especially with design and research content: 501, 520, 525, 544, 548, 551, 582, 618, 620, 622, 623, 625, 631, 632, 636, 639, 649, 663, 665, 684, 689, 691 (appendix II.2.2 & II.3) | C+F All mastery courses (II.1c) | F GIEP (II.1c) and related course 691 | C+F Entrepreneurship Program (II.1c) | C+F Michigan Makers Program (II.1c) | C+F Citizen Interaction Design Program (II.1c) and related courses 529 & 538 (appendix II.3) | C+F Master's Thesis Option Program (II.3b, IV.5.2) | C+F A2 Data Dive (II.1c)
Goal 2: Communicate these solutions => competencies (knowledge and skills) required to get to this goal) a. Presentation skills b. Speaking skills c. Ability to formulate an argument d. Written communication skills	Same as #1 (communicate clearly in written, visual, and oral formats) above
All MSI Students will be able to:	Key Components of UMSI's Current (C) and Future (F) MSI Program
Goal 3: Be able to implement solutions a. From management aspects (people) b. To technical aspects (technologies) c. To information aspects (information)	Same as Goal 1 above plus: Electives especially with management content: 523, 530, 534, 617, 627, 661 (appendix II.3) | C+F Electives especially with technical content (II.2.3 & appendix II.3) | C+F Electives especially with information content (Table II.11 & appendix II.3) | C+F
Goal 4: Adopt a way of thinking about the solution that embraces a. The People, Information, and Technology framework b. An aim to change the world c. Work grounded in theory	Same as Goal 1 above plus: Electives especially with theory content (II.1d & appendix II.3) | C+F Electives especially those responding to the needs of a global and diverse society and underserved groups (II.2.4 & appendix II.3) | C+F Practical Engagement Program (II.1c & II.3b) and related course 690 | C+F Peace Corps Programs ((II.1c & II.2.4) | C+F

Currently, the MSI Program is in the midst of curriculum reform and, in light of this, UMSI faculty revised this Program's goals and objectives. Moving forward, the MSI Program's goals and objectives will be to:

- *Prepare information professionals for careers in a dynamic, global job market.*
- *Ensure that graduates are proficient in the core competencies and develop mastery in one or more areas of UMSI's professional strengths.*
- *Help students develop and embrace a way of thinking and practice that advances UMSI's mission and values:*
  - » *The importance of an understanding of interactions between people, information, and technology;*
  - » *A commitment to nurture diversity;*
  - » *An aim to change the world.*

I.1.2 Assessment of attainment of program goals, program objectives, and student learning outcomes.

Faculty and staff gain regular understanding of the degree to which we reach MSI program goals and students achieve core competencies through a variety of mechanisms. These include student achievement in individual courses, student completion of specializations, employer surveys which encompass the skills our students have and need, alumni surveys, and curriculum evaluation.

Individual courses embody the MSI program goals and competencies through a variety of assignments and learning activities. All new or substantially revised course proposals must include learning objectives and are reviewed and approved by the MSI Program Committee. In reviewing course proposals, the MSI Program Committee scrutinizes the learning objectives, comparing them to MSI Program goals and core competencies. More information on the curriculum and how it meets MSI program goals and how the competencies are reflected in the curriculum is presented in chapter II. By successfully completing a specialization (e.g., a focused area of study), students will also have achieved the competencies that align with that specialization. Surveys of new graduates enable us to assess whether the current competencies are meeting their needs and the extent to which students perceive that they are competitive on the job market. Surveys of employers also assist us in assessing whether students do achieve key competencies as well as whether we have identified the correct set of competencies. Further information about student achievement and how that relates to MSI Program goals and competencies is presented in chapter IV. Periodic evaluation of the MSI curriculum in part or as a whole is also a vital part of assessing whether our goals and competencies are being met. Information about the three-year specialization review process which analyzes part of the curriculum appears in standard II.1b. More information about the MSI curriculum reform is presented in a discussion of the MSI Program's three themes below, specifically the "MSI Program Curriculum Reform" theme as well as in chapter II.

Our three themes, (1) engaged learning, (2) diversity, equity, and inclusion, and (3) MSI program curriculum reform, are closely aligned with School-wide and MSI mission statements, goals, and core competencies. They each arose out of strategic planning

processes and guide us as we move forward. Engaged learning and MSI program curriculum reform are particularly targeted at the MSI Program and our desire to enhance the learning experience for MSI students in the course of earning their master's degree. Here we discuss our three themes vis-à-vis how they emerged from the School's strategic planning and assessment processes.

Engaged Learning

The UMSI vision and mission speak directly to engagement with the world. That engagement begins in our educational programs and has been a hallmark of the MSI since its beginning. Engaged learning forms a bridge between our previous 2010 accreditation self-study theme, the School's Practical Engagement Program (PEP), and the new learning opportunities in our MSI curriculum that link to co-curricular programs. Engaged learning also aligns with the U-M's Teaching and Learning in the Third Century Initiative (TLTC) which emphasizes active teaching and learning as well as do both the UMSI and MSI mission statements. Finally, engagement is implicit in the four core competencies of the MSI Program, e.g., solving complex problems that involve people, information, and technology; communicating those solutions; implementing solutions in the real world; and thinking about solutions that embrace the people, information, and technology framework, an aim to change the world, and are grounded in practice and theory.

UMSI faculty have been very successful in winning several TLTC grants to support many co- and extracurricular active learning initiatives within UMSI. We take our definition for engaged learning from the University of Michigan (U-M) Provost's Office Report, "Synthesis Report of the Provost Task Teams on Engaged Learning and Digital Instruction" (appendix I.1):

> *"Engaged learning can then be conceived as a set of educational practices that provide students with these opportunities for practice [italics original] by addressing unexpected, unscripted challenges in imperfect, real-world settings where stakeholders beyond the students themselves are invested in the outcome." (University of Michigan, n.d.)*

UMSI's engaged learning opportunities occur in regular courses, such as Contextual Inquiry and Consulting Foundations (501) and Evaluation of Systems and Services (622) which feature using theory and skills learned in the classroom with actual clients. Engaged learning opportunities are also the cornerstone of the Initiative for Information Impact (I3) Program and are embodied in specific programs, such as Citizen Interaction Design (CID), Michigan Makers, and the Global Information Engagement Program (GIEP). In addition, the UMSI Entrepreneurship Program was started as an effort to advance the integration of entrepreneurial thinking into the curriculum and co-curricular activities. I3's goal is to place practical experience, interdisciplinary work, and a commitment to improving lives at home and abroad at the very heart of the School's curriculum. Each of these I3 programs has in-class and co-curricular aspects. In addition, engaged learning also occurs in student-led co-curricular events, such as the A2 DataDive. Standard II.1c describes engaged learning opportunities in depth under the title "Engaged Learning through the Initiative for Information Impact (I3) Program" and splits these opportunities into international, domestic, and in-class educational experiences. UMSI funding for I3 was the result of the School's strategic investment planning process which occurred in 2012 and is discussed in standard I.4.

Diversity, Equity, and Inclusion

UMSI embarked on a Diversity Planning Process during the 2012-2013 academic year. The Dean appointed members of the Dean's Cabinet (consisting of staff unit directors) co-chaired by the assistant dean and a faculty member to the Diversity Planning Group (DPG) task force. This group was charged to engage faculty, staff, and students to develop a school statement on diversity and a set of 5- to 7-year School-level diversity goals. This initiative is directly tied to the UMSI mission of creating and sharing "knowledge so that people will use information—with technology—to build a better world" for everyone. It also connects to the MSI program goal of a "commitment to nurture diversity."

After a several-month process involving focus groups and meetings, the UMSI diversity statement and the 5- to 7-year goals were endorsed by the Dean as well as the faculty, staff, and student leaders. The Dean also accepted and put into action the DPG's recommendation to include diversity as a category in all faculty and staff goal setting and evaluations as well as the creation of a school-wide Diversity Committee. Making up UMSI's Diversity Committee are: (1) faculty and staff co-chairs appointed by the ADAA, (2) two additional faculty members appointed by the ADAA, (3) two additional staff members appointed by the CAO, (4) one doctoral student recommended for appointment by the Doctoral Student Organization (DSO), (5) one master's student recommended for appointment by SIMA, (5) one undergraduate student recommended for appointment by the School of Information Bachelor's Association (SIBA), and (6) a support staff member for note-taking and other administrative duties. The dean also approved the DPG's UMSI Statement on Diversity:

Each year, the Diversity Committee is charged with achieving specific activities and benchmarks that fall within the five broad areas outlined in the original plan: coordination, composition, capabilities, climate, and contributions to move us toward a more diverse, inclusive, and equitable community. In 2013, the Diversity Planning Committee drafted a Statement on Diversity that was subsequently approved by the UMSI governing faculty. The Statement provides the foundation for including goals for diversity in the UMSI's overall strategic planning process. The UMSI Statement on Diversity reads:

The University of Michigan School of Information (UMSI) is a scholarly community of faculty, staff, and students who come together from hundreds of unique backgrounds. This diversity is a key advantage of the school. We also seek diversity in our school because doing so helps to build a better world.

United by our interest in making technology and the communication of information between people better, and sharing the belief that our efforts can change the world, we use our many backgrounds, orientations, and points of view to shape our research, teaching, and learning. Together, we produce better, more creative work than we would have been able to accomplish without so many different, strong contributions. We trust each other's commitment to the School's mission, and seek to understand and take advantage of the insights and experiences that make our stories different.

UMSI is unique in how broadly it approaches information problems, bringing together the intellectual diversity of a dozen social and technological sciences. A community of students, faculty, and staff that is multicultural, international, and representing differences in countless other ways is essential to maintain that edge.

We actively work to increase the diversity of our school, and also to make it a welcoming environment for everyone who chooses to share their unique strengths here at UMSI.

What is your story? What do you bring to the table? Join us, and explore the possibilities.

The 2013 UMSI Diversity Statement is aspirational. It emphasizes that we are a scholarly community made up of people from a wide range of unique backgrounds and that we seek diversity because it amplifies our efforts to build a better world. We are united by a mutual interest in enlisting technology to effect information transfer and in working together to make it happen, we are able to leverage our personal, socioeconomic, cultural, intellectual, and other forms of diversity in ways that make us more creative and give us a more robust and wide-ranging set of ideas and solutions. To this Diversity Statement was appended a set of five-year goals in five areas: Planning and Coordination, Composition, Capabilities, Climate, and Contributions (appendix I.2). Within these broad areas, there are yearly goals to move us toward a more diverse, inclusive, and equitable community. For example, the ADAA's 2015-2016 academic year charge to the UMSI Diversity Committee focused on these activities:

1. *Planning and Coordination*
    - » *Participate in the U-M's Diversity, Equity, and Inclusion Strategic Planning Process and develop a School-level plan by May 30, 2016.*
    - » *Align the UMSI Diversity plan with the University-wide Strategic Planning Process.*
2. *Composition*
    - » *Review and assess the composition of faculty, staff, and student populations.*
    - » *Monitor and support implementation of DEI and UMSI goals for student recruitment and faculty and staff hiring.*
3. *Capabilities*
    - » *Solicit proposals for training, development, community building, and related initiatives that build the capacity of students, staff, and faculty to work productively and live in a diverse, equitable, and inclusive environment. Assess proposals and select two to four projects worthy of financial support and/or sponsorship.*
    - » *Lead two to four diversity / inclusion initiatives.*
    - » *Continue to act as a clearinghouse for educational opportunities to faculty, staff, and students (both separate and as whole-school events) about diversity issues. These can either be hosted elsewhere on campus, offered by UMSI faculty and/or students, or through the identification of outside groups or individuals.*
4. *Climate*
    - » *Develop an action and activity plan that addresses the diversity and inclusion issues of underrepresented minorities, international students, and women surfaced in the 2015 School Climate Survey report.*

» *Conduct additional climate analyses/assessments as needed for the University DEI strategic planning process.*

5. *Contributions*

» *Develop ways to identify, draw attention to, and recognize the contributions that diversity brings to the UMSI community.*

» *Report the Diversity Committee's activities to the Dean by May 31, 2016.*

The most recent Diversity Committee's year-end report assessing its progress toward these yearly goals appears as appendix I.3. In addition to sponsoring and organizing numerous programs and activities and upgrading the School's diversity website, the Committee established two new awards: the UMSI Diversity Award to recognize individuals or groups within UMSI who have demonstrated a significant commitment to fostering diversity, equity, and inclusion; and the Gender Diversity in Information & Technology Award to recognize individuals or groups within the School who have made specific contributions to the advancement of gender diversity in information and technology. The Committee was exemplary in achieving its goals.

To foster continued progress the committee made several recommendations for future efforts (fully outlined in appendix I.3) including: (1) review and revise policies for admissions and hiring to reduce potential for implicit bias; (2) offer town hall discussions on diversity and inclusion to build community awareness and understanding of issues and strategies to address them; and (3) continue educational programming and training opportunities around issues of gender, race, and non-U.S. citizenship.

In fall 2015, the U-M initiated a Diversity, Equity, and Inclusion (DEI) planning process (see appendix I.4 for U-M President Mark Schlissel's Charge to the U-M Community for a Strategic Planning Process on Diversity, Equity and Inclusion). Each U-M school and college was tasked with developing its own strategic plan that would then be reviewed and approved by the U-M. Goals and objectives from school and college plans would then be incorporated into a U-M DEI Plan. The U-M's planning process called for more depth than the existing UMSI planning process. Also, the UMSI Plan was lacking some elements mandated by the U-M DEI Plan.

Initially, UMSI's Diversity Committee was charged with creating the new DEI plan; however, in December 2015, it became clear that the Diversity Committee could not create the plan and achieve its other goals. Therefore, the Diversity Committee was split and additional members were placed on what became the UMSI Diversity Strategic Planning Task Force. The Task Force met throughout the remainder of the 2015-2016 academic year and produced the UMSI Diversity, Equity, and Inclusion Strategic Plan (appendix I.5). This Plan aligns goals with metrics for assessment and responsibility for action and addresses three areas: (1) recruitment, retention, and development; (2) education and scholarship; and (3) promoting an equitable and inclusive community.

This latest DEI planning process was particularly beneficial to the School, giving us the chance to revisit our original UMSI Diversity Plan, expand our assessment of the issues affecting the School, reprioritize our activities, and create a stronger UMSI DEI Plan. Furthermore, it gave us a chance to look across areas in the School, examine different datasets, and evaluate initiatives fostering diversity, equity, and inclusion as well as areas for improvement. In addition to the UMSI DEI Plan's specific goals and objectives aimed at more diverse faculty and student recruitment practices and greater inclusiveness in

curricular and co-curricular activities, we will make four infrastructural changes to address DEI issues:

1. Creation of a dean-level role with responsibility for DEI;
2. Better integration of diversity initiatives into the overall UMSI strategic planning process;
3. Reexamination of the role of the Diversity Committee; and
4. Better communication and coordination within the School.

Enhancing the School's leadership with a senior administrator responsible for DEI will help to integrate and synchronize the many DEI efforts going on in the School. For example, the Diversity Committee has taken leadership on co-curricular programs and climate issues while faculty search committees and OSA have focused more on recruitment activities. No one is currently connecting these sometimes overlapping initiatives to produce more encompassing and enduring impacts, so the addition of a senior DEI leadership position will be critical in making future progress.

The UMSI strategic planning process has also been somewhat atomized. Looking across individual plans and helping faculty, staff, and UMSI leadership identify synergies earlier would again help us to focus DEI efforts and combine energies to create both better and more impactful action. This would also help UMSI to more readily track what is going on and identify gaps.

The LT will reassess the authority, role, resources, composition, and effectiveness of our standing Diversity Committee. That the Diversity Committee meets only during the academic year and has new membership every year may be detrimental to building on accomplishments that are necessary for the UMSI's DEI Plan to succeed. At the very least, we are in the process of changing our policy on appointments to all standing committees and appointing faculty on a two-year rotating basis to increase continuity and institutional memory.

The 2015 School Climate Survey identified a need for greater transparency and communication in school-wide planning and decision making to foster a stronger sense of inclusion across the community. We are now reviewing our internal communication policies and practices to foster a more transparent environment.

Master of Science in Information (MSI) Curriculum Reform

MSI curriculum reform will have a substantial and direct impact on the future direction of the Program. In the spring of 2014, the UMSI faculty resolved to replace the current curriculum structure. The motivations for curriculum reform stem from a desire to (1) increase the depth of our course offerings such that students achieve and demonstrate mastery of more advanced material, (2) improve our ability to innovate and create a curriculum that is responsive to changes in student- or faculty-driven interests, and (3) enhance the professional experiences and training that students gain from our MSI Program. The ADAA appointed the MSI Curriculum Revision Task Force to propose the new curriculum's framework. Working diligently to deliver this framework, the Task Force performed an extensive analysis of information and data about the composition of and changes in the student population, student experiences, job placements, employment trends, and employers' recommended and required job competencies and expectations for entry-level professional positions. The framework was formalized in the Task Force's MSI

Curriculum Proposal (see appendix II.2), presented to the UMSI governing faculty in a faculty meeting, and accepted by this faculty in May 2015.

In the 2015-2016 academic year, new-curriculum implementation activities commenced, and several significant steps have been accomplished to put us on schedule for a fall 2017 full launch:

1. Development of mastery courses
2. Course mapping to identify academic paths leading to the mastery courses
3. Development of the pilot MSI Orientation Experience (MORE)

Although the formal launch of the new MSI curriculum will be in fall 2017, existing master's-level students will have the opportunity to pilot test some of the mastery courses in fall 2016 and winter 2017 as well as to take a new sequence of technical courses emphasizing programming skills.

In November 2015, the MSI Program Committee issued a call for mastery courses. The Committee received a dozen submissions and selected five for piloting in the 2016-2017 academic year. In short, the new curriculum moves from a requirements-based (one size fits all) to a prerequisite-based approach (personalized academic plans characterized by mastery courses with hard prerequisites). That is, instead of choosing a specialization and selecting electives to fulfill the specialization's number-of-courses quota, students consider up front the knowledge, skills, and competencies they want to develop in the form of a mastery course, then set about obtaining these through the successful completion of a sequence of courses that give them considerable depth in the content, skills, and knowledge that employers in their desired careers expect.

I.1.3 Improvements to the program based on analysis of assessment data.

MSI curriculum reform was the result of a several-year-long process of talking to faculty individually, in faculty meetings, examining data that OSA and the Career Development Office (CDO) collect, conducting discussions with the School's EAB, and collecting new data from current students, alumni, and employers. The intensive process of data gathering, analysis, and integration identified three overarching issues: (1) the need to appeal to a shift in the student population from older, domestic students to younger and more international students, (2) the need to quickly and efficiently adapt to emerging careers, and (3) the need to emphasize pedagogical elements such as engaged learning, critical thinking, and a "flat" curriculum where prerequisites were often waived and few courses provided the depth needed for emerging careers.

I.1.4 Communication of planning policies and processes to program constituents. The program has a written mission statement and a written strategic or long-range plan that provides vision and direction for its future, identifies needs and resources for its mission and goals, and is supported by University administration. The program's goals and objectives are consistent with the values of the parent institution and the culture and mission of the program and foster quality education.

The School's mission, vision, and principles are strategically posted on its website under the "About" link at si.umich.edu/aboutsi/history-and-mission, a location where most

people would expect to find basic and explanatory information about an organization. The School's strategic planning documents are available to UMSI faculty and staff on the UMSI Intranet. Faculty and staff participate in the planning process as members of planning committees or in faculty meetings where committees present their plans and progress, and they align their goals with the plan, eventually enacting different aspects of the plan in their teaching, research, and service activities. Thus, we are confident that we communicate our plans to all constituencies.

The U-M's Provost considers the School's planning policies and processes in conjunction with UMSI's budget request and ensures that these are aligned before approving the budget. The EAB helps to ensure that actions taken align with UMSI's strategic plan and that the strategic directions align with their areas of interest (e.g., industry, alumni, employers, other academics). Additionally, the deans meet with SIMA's leadership and host a biannual Ask the Deans session for master's-level students. Generally, UMSI's communication mechanisms are tailored to reach as many people as possible within the School's various and varied constituencies.

The UMSI mission statement (standard I.1.1), strategic plan and yearly goals (appendix I.6), and budget (standard V.1c) are all aligned. While each of these is discussed elsewhere, they are tightly linked to form an important triad from which all initiatives flow.

The U-M's mission statement follows:

> *The mission of the University of Michigan is to serve the people of Michigan and the world through preeminence in creating, communicating, preserving, and applying knowledge, art, and academic values, and in developing leaders and citizens who will challenge the present and enrich the future.*

UMSI's mission complements the U-M's mission, carrying the latter forward and specifying UMSI's unique contributions to it. In particular, UMSI's three-part focus on information, technology, and people relates to activities around knowledge creation and preservation, and the MSI Program's core competencies focus on developing leaders, innovators, and responsible and ethically grounded citizens. Furthermore, as the goals of the University at large change, MSI program core competencies are able to drill down and delineate the specific ways in which UMSI can further the University's goals. In short, we look to the larger University for direction, then chart a course that best fits our School.

Our alignment with the U-M's mission also means that we have a culture of educational quality. We promote quality instruction by our faculty (see standard III.2), and we continually assess specific parts, or in the case of MSI curriculum reform, the entire curriculum to deliver a quality education.

I.2a

Clearly defined student learning outcomes are a critical part of the program's goals. These outcomes describe what students are expected to know and be able to do by the time of graduation. They enable a faculty to arrive at a common understanding of the expectations for student learning and to achieve consistency across the curriculum.

The MSI Program's student learning outcomes are expressed as both general competencies as well as an articulation of skills (see standard I.1.1). These competencies are embodied in the MSI curriculum in the form of learning objectives that are mandatory for all MSI

classes, part of the course proposal package reviewed by the MSI Program Committee during the course approval process, and stated prominently in the syllabus of each UMSI course. They are also embodied in the existing curriculum's foundations courses and in the academic plans underlying all specializations. Within each specialization, students receive guidance on its requirements through the advice of professional and peer academic advisors and through Tracking and Planning Sheets (TAPS) described in standards II.3a, II.3c, and IV.4a.

I.2b Student learning outcomes reflect the entirety of the learning experience to which students have been exposed.

In this report, chapter II addresses specific learning outcomes. Table I.2 identifies where these outcomes can be found.

Table I.2 Chapter II's Discussion of Learning Outcomes

No.	ALA Standards 1.2.1–1.2.8	References to Chapter II
I.2.1	The essential character of the field of library and information studies	II.1c (Foundations Courses), II.1d (Theory); II.2b (Tables I.11 and I.12)
I.2.2	The philosophy, principles, and ethics of the field	II.1d (Theory; Principles; Legal and Ethical Issues and Values)
I.2.3	Appropriate principles of specialization identified in applicable policy statements and documents of relevant professional organizations	II.1d (Principles); II.1c (Engaged Learning: PEP); II.2.6; II.3b (all Engaged Learning entries)
I.2.4	The importance of research to the advancement of the field's knowledge base	II.1c (Distribution Requirements: Research); II.2.2; II.2.4 (Relevant Research Projects); II.3b (Master's Thesis Option)
I.2.5	The symbiotic relationship of library and information studies with other fields	II.1d (Theory; Principles); II.1c (Cognates)
I.2.6	The role of library and information services in a diverse global society, including the role of serving the needs of underserved groups	II.1c (all programs under I3, Initiative for Information Impact); II.2.4
I.2.7	The role of library and information services in a rapidly changing technological society	II.2b; II.2.3; II.2.5; II.2b (Tables II.11 and II.12); II.2.3; II.2.5
I.2.8	The needs of the constituencies that the program seeks to serve	II.1c (Engaged Learning: PEP; Entrepreneurship; Alternative Spring Break; CID; Community Impact Projects; Michigan Makers); II.1d (Practice); II.2.1; II.2b (Tables II.11 and II.12); II.2.1; II.2.4; II.2.6; II.3b (Engaged Learning: PEP); II.3b (Engaged Learning: ASB); II.3b (Course-Based Engaged Learning Opportunities)

I.3 Program goals and objectives incorporate the value of teaching and service to the field.

Teaching and service are reflected in School-wide as well as MSI mission and goals. At the School level, the UMSI Mission (see standard I.1.1) embodies our service ethic. The

UMSI Strategic Plan presents yearly goals and objectives, many of which promote quality instruction and service (see appendix I.6). For example, in the 2016-2017 strategic plan, the goals stated:

- Advance faculty capacity for multicultural teaching and learning. Achieve 80% faculty participation over next two years in UMSI- or CRLT-sponsored workshops to review and revise courses to better incorporate and respond to issues of diversity and inclusion. Continue to develop GSI / lecturer initiatives for multicultural and active teaching and learning including assessment of this effort.
- Evaluate school level, externally engaged learning efforts across the curriculum and co-curriculum

The value of teaching and service is incorporated into the School in other ways. For example, ADAA's charge (yearly objectives) to the Diversity Committee includes promoting inclusive teaching and support for a range of service activities. Furthermore, all faculty must set yearly teaching goals in their annual review documentation (called Faculty Annual Review form or FAR) and note how they met their teaching goals from the previous year. This sets faculty on a path of continual improvement in teaching. Faculty must also report their service activities on the FAR. Referring to faculty's completed FARs, the dean and associate deans perform an annual evaluation of faculty that is based on teaching and service (as well as research) and weigh teaching equally with research in the evaluation.

The full MSI goals and core competencies are discussed in standard I.1.1. Two of the goals incorporate the value of teaching and service. Goal 2, "Deliver an educational experience in and outside the classroom," is the most explicit statement of our commitment to teaching and service, and goal 3, which concerns educational outcomes, relies on quality teaching and service.

Student attainment of the core competencies is dependent on good teaching. However, teaching and service are also necessary to achieve the core competencies. Core competency goals 1 and 2 state that our students can solve complex problems and communicate solutions. Thus, they can teach whether it is a one-on-one, an in-person reference encounter, is mediated by technology such as chat or email, or is a one-to-many situation involving standing in front of a formal class. Service is also embedded in all four of the core competency goals. In fact, one could see attainment of the first three core competency goals as being in service to part of the fourth:

> *Adopt a way of thinking about the solution that embraces…an aim to change the world.*

This competency statement, in turn, echoes the UMSI mission statement.

> *We create and share knowledge so that people will use information—with technology—to build a better world.*

I.4

Within the context of these standards each program is judged on the extent to which it attains its objectives. In accord with the mission of the program, clearly defined, publicly stated, and regularly reviewed program goals and objectives form the essential frame of reference for meaningful external and internal evaluation.

UMSI has publicly stated and regularly reviews School-wide and MSI program goals and objectives. These are shared with the entire UMSI community and constituencies and input from internal and external sources is regularly sought. Standard I.4.1 provides an overview of the planning process.

I.4.1

The evaluation of program goals and objectives involves those served: students, faculty, employers, alumni, and other constituents.

Former Dean Jeffrey MacKie-Mason initiated a strategic planning process in 2013. The result was a set of strategic, 5- to 7-year School goals which carried us through most of the self-study period. In response to this standard, we describe our processes for strategic as well as regular, ongoing, and focused planning and evaluation of our mission, goals, and objectives and for re-planning of our activities. Appendix 1.6 contains strategic planning documents from the 2013-2017 fiscal years (FYs).

The UMSI dean led the strategic planning process by establishing and prioritizing a set of ambitious seven-year high-level goals which were shared among the LT, Management Team (consisting of staff unit leads), and the faculty. These were then refined and elaborated upon by the LT who then worked with faculty and staff in the academic programs and administrative areas to identify yearly goals which would move UMSI to achieving its long-term goals. Each year, the LT sets out yearly goal targets and priorities within the context of the long-term strategic plan. These targets and priorities are then shared with staff who build their unit and personal goals around them. Staff goals and priorities, in turn, may be incorporated into annual School-wide goals statements.

The strategic plan is divided into four areas: (1) Education, (2) Scholarship, (3) Culture and Community, and (4) Resources and Administration. Within each of these areas, we have set School-wide goals and program-specific goals. Goals for specific programs can be identified as a high-level goal or embedded within other goals. For example in the FY 2014 plan, the initial MSI Curriculum Proposal was identified as a goal:

> *By 28 February 2014 have a plan adopted by the faculty to improve the effectiveness of the degree program structure, including a timeline of milestones to implement the revised program starting with the class entering in September 2015.*

Annual School-wide goals are articulated in the charges to the different standing committees, particularly the four academic program committees (BSI, MSI, MHI, and PhD), Faculty Search Committee, and Diversity Committee. Throughout the year, LT members report on progress toward goals based on their own work and the work of the administrative units or faculty committees reporting to them. The ADAA's yearly charge to the MSI Program Committee flows directly from the strategic plan that supports the MSI program goals discussed in standard I.1.1. The charge includes the MSI Program Committee's role in carrying out School-wide goals and also reflects consultation with the MSI Program Director and Committee. (See appendix I.7 for the ADAA's charge to the

MSI Committee for the 2015-2016 academic year.) Much of the 2015-2016 charge was focused on beginning the implementation of the future curriculum which built off both the Strategic Plan's emphasis on quality education and MSI Program goal 2's emphasis on delivering a quality educational experience inside and outside the classroom. The charge also addressed other goals concerning student recruitment and admissions, student yield, performance measures, and scholarship decision-making.

On a yearly basis, the LT engages in a continual cycle of assessment of progress toward goals, yearly goal-setting, planning, and evaluation of progress toward achieving the objectives set out in the plan. At the end of each academic year, each academic program director and committee chair sends a report to the ADAA outlining their activities and how well their committees fulfilled their charges. This synergistic process contributes back into the planning cycle in the year to come. Here we outline the systematic planning process and then follow this with more detail on evaluation and feedback mechanisms.

Faculty articulate their goals in their faculty annual review (FAR) which they submit in May along with an updated CV. In their FAR, faculty list their previous year's goals for research, teaching, and services, note on how they fulfilled or did not fulfill their goals, and set new goals for the coming year. Beginning in May 2015, faculty began to set diversity-related goals and report on the extent of their fulfillment of these goals. Generally, faculty goals are personal, referring to their specific teaching, research, and service contributions and relating loosely to the overall UMSI planning process. (See appendix I.8 for the FAR form.)

UMSI's strategic planning process feeds directly into the financial planning process. School-wide goals frame the annual budget that the dean presents to the provost. The financial planning process includes a discussion of how funds were used to achieve the previous year's goals and how the current year's budget request supports stated goals for the upcoming year. The budget development and approval process is described in standard V.1c.

Dean Thomas Finholt has also made systematic planning a cornerstone of his new administration. However, he has taken a leaner and more streamlined approach to planning. Dean Finholt has established several strategic priorities for the School:

1) diversifying the faculty and student bodies; 2) increasing access to UMSI programs; 3) focusing on community engagement in instruction and research; and 4) conducting research in the public interest, such as making social media safe and productive. The LT, staff, and faculty then take the dean's strategic priorities into account as they engage in their yearly goal-setting activities. This will enable staff managers to design responses from the bottom up and coordinate initiatives better with colleagues.

Alongside the School's larger strategic programmatic planning process, there have been two other major planning initiatives: (1) the 2012 internal Strategic Investments Planning Initiative, and (2) the current Diversity Strategic Planning process that has both internal and external dimensions. Standard I.1.2 covers the latter and a discussion of the former follows.

The LT also engaged in a one-time Strategic Investments Planning Initiative in 2012. There were several impetuses for this. First, UMSI had a large funds balance, and there was pressure from the University not to carry such a large balance. Second, several endowment funds were not being used; for example, the Founders Fund had just been

fully funded, and the LT wanted to spend those funds on an impactful activity. Third, there were a number of competing needs, and this planning process was a mechanism to better understand those needs and how they fit within the strategic plan and the UMSI mission. LT considered these nine proposals for strategic investment of endowment funding: (1) Capital Reserves for Long-Term Space Plan; (2) General Reserves; (3) Student Funding Infusion; (4) Entrepreneurship Program; (5) Pre-Tenure Sabbaticals; (6) Engaged Learning Program; (7) Large-Scale Research Grant Program; (8) Associate Professor Development Grants; and (9) Faculty Growth. After deliberating on how best to reach UMSI goals and objectives, the LT decided to make strategic investments in five areas:

1. *Capital Reserves for Long-Term Space Plan.* In the previous self-study, UMSI was still housed in West Hall and planning a move into our new North Quad quarters. Due to various political circumstances which eliminated almost a third of the space we had originally been promised, our long-anticipated move to North Quad was bittersweet. While the faculty was reunited under one roof, we moved into North Quad full with no room for growth. (See standard V.9a for a discussion of North Quad and UMSI's satellite facilities.) One consequence of our space situation is that, upon moving into North Quad, we immediately began planning for a new space and have been systematically setting aside capital reserves in preparation for the move. In the 2015-2016 academic year, we engaged in a planning process around potential space on central campus, but that proved unfeasible due to the requirements of another school with which we were collaborating. We have now submitted a capital request for a facility shared with the College of Engineering (COE) which would house the COE's computer science faculty and UMSI.
2. *Large-Scale Grant Program.* This Program was seen both as an investment and as a potential revenue generator. It was designed to incentivize senior faculty to pursue large (i.e., greater than $5 million) grants. Standard III.5 describes the Large-Scale Grant Program in greater detail.
3. *Faculty Growth.* To accommodate UMSI's growth and support its four academic programs, we have engaged in a program of faculty growth. The planned growth in faculty was done in anticipation of the launch of the BSI and MHI Programs, and done to ensure that the MSI would not be adversely affected but be sustained at its existing level. Faculty growth is detailed in standard III.1a.
4. *Pre-Tenure Course Release.* In order to support these new faculty, one of the strategic investments was to provide a course relief to junior faculty after a successful third-year review. While not quite a pre-tenure sabbatical, a pre-tenure course release would relieve junior faculty of one semester of teaching as they move into the final critical two years before submitting the tenure package. Over the long term, we anticipate that this will create a stronger and more successful tenured faculty who are able to engage more fully in the life of the School.
5. *Engaged Learning and Entrepreneurship Program.* The Strategic Investments process funded I3. Specific engaged learning projects funded by the Founders' Fund were Citizen Interaction Design (CID), Michigan Makers, and the Global Information Engagement Program (GIEP). These investments were particularly strategic in the sense that each project has since gained support from other sources. CID received two grants from the U-M's Teaching and Learning in the Third Century Program, a pilot grant to prove proof-of-concept and a $378,000 grant to expand the program. This same Third Century Program provided start-up funding for Michigan Makers which led to a $499,441 Institute for Museum and Library Services (IMLS) grant to

grow professional development and support for makerspace learning and innovation programs in libraries throughout the State of Michigan. GIEP received special funding from the U-M provost. The Entrepreneurship Program was funded through a large gift from private donors Roger and Carin Ehrenberg whose wish was to inspire and support every UMSI student to participate in at least one passion-led, self-driven innovation project (PLSDIP) during their time at UMSI.

I.5 The program has explicit, documented evidence of its ongoing decision-making processes and the data to substantiate the evaluation of the program's success in achieving its mission, goals, and objectives.

There are multiple evaluation mechanisms in place to assess how the School is meeting its goals and fulfilling the strategic plan. Faculty report annually on their goals and activities via FARs. Staff report on individual and unit goals via an annual review process that feeds into the ensuing year's individual, unit, and School-wide goals.

We also use a variety of metrics to measure progress on a School-wide basis. Most of these metrics are collected in the normal course of business. Here are examples:

- Diversity is measured through the actual number of recruited faculty and students,
- Teaching is assessed through the end-of-term student evaluation and other course development activities, and
- Student outcomes are assessed through employment outcomes.

We also gather data in areas of special emphasis; for example, we hired an outside evaluator to assess the CID program. This provided us with an independent and objective evaluation and good feedback to improve the program from the perspective of the students and community members.

Table I.3 presents measures for MSI program goals. These measures are carried into the ADAA's yearly charges to the MSI Program Committee which have measurable outcomes in terms of deliverables, for example, requiring the MSI Program Committee to demonstrate progress toward implementing the future curriculum and to report student yield in terms of an incoming student body profile with certain characteristics.

Decisions are documented in numerous ways. There are minutes for most leadership, faculty, staff, and program committee meetings. Decisions are documented in these minutes. Furthermore, decisions are documented in policy changes and communicated in the various handbooks, such as the UMSI Faculty Handbook (https://sites.google.com/a/umich.edu/umsi-policies/?pli=1) and the MSI Student Handbook (see appendix IV.1) and/or through communications from the dean, associate deans, or program chairs. These and important policy changes or notices from the University are passed on to faculty, staff, and students through the School's official email channels.

Table I.3. Measurements for MSI Program Goals.

1. ***Goal 1: Recruiting Quality Students***
    - *High academic quality*
        - » *Incoming GPA, GRE, TOEFL, personal statements, undergraduate institution quality, quality of any other previous institutions*
        - » *GPA at UMSI*
        - » *Benchmark against peer programs rather than previous UMSI cohorts*
        - » *Degree completion rate*
        - » *Selectivity*
        - » *Scholarship acceptances*
    - *Diversity of backgrounds*
        - » *Demographics and life experiences from application materials*
        - » *Surveys*
    - *Invested in the UMSI mission*
        - » *Personal essay in application*
        - » *Participation in student groups and activities*
    - *Meets faculty expectations*
        - » *Faculty survey*
        - » *(Right experience) – curriculum gaps*
2. ***Goal 2: Quality Educational Experience In and Outside the Classroom***
    - *Questions in the yearly/exit surveys about aspects of the program*
    - *Teaching evaluations*
    - *Internship portfolios/reports*
    - *Employment reports*
    - *Do students take advantage of the breadth of UMSI?*
        - » *Evaluation of academic plans, specifically movement between specializations for courses*
    - *Awareness of UMSI activities, faculty, and PhD students*
        - » *Attendance/enrollment data in co-curricular activities*
        - » *Master's student engagement in faculty research and initiatives*

- *Value of curriculum to students career goals*
  - » *Exit interviews*
  - » *Enrollment data*
- *Can student easily get the number of credits they need?*
  - » *Student satisfaction survey*
  - » *Enrollment data*
  - » *Internship success*
  - » *Students' internship portfolios*
  - » *Exit surveys*
- *Student satisfaction*
  - » *Yearly survey*

3. ***Goal 3: Student Outcomes***
   - *Annual survey of graduates within their first year*
   - *Placement / Job satisfaction survey*
   - *Employer surveys*

I.6 The program demonstrates how the results of the evaluation are systematically used to improve the program and to plan for the future.

Data from systematic ongoing evaluations as well as from special evaluations are used to improve the program. Table I.3 enumerates the different data sources used to judge whether each of the three MSI program goals is being met. Furthermore, the MSI Program Committee periodically reviewed specializations in the current curriculum to assess ability to sustain the specialization as well as how well the specialization carried out program goals and objectives. In response to specialization reviews, two specializations—information policy and community information—were discontinued. Courses on these topics remain for MSI students, though. Our evaluations vary and employ both qualitative and quantitative measures to ensure we use the best means of assessing a given goal. For example, determining whether high-quality students enroll in the MSI Program is not only based on GPA, GRE, and TOEFL scores but on personal statements and essays in their applications and the quality of their undergraduate institutions.

If a goal is not being met, we address the issues. We have two recent experiences of systematic evaluation which we have used to feed back into the regular operations of the MSI Program. First, the MSI curriculum reform process arose from concerns about student placement from employers and students who did not feel we were moving quickly enough to address skills currently needed in the workplace or those just emerging. While the quantitative data showed good student placement, employer and student comments revealed unmet curricular needs that we wanted to address prior to any decline in the job

placement or job satisfaction scores. Thus, the MSI curriculum reform was inclined to solutions that focused on students demonstrating mastery of the major theories, methods, skills, and approaches to inquiry, and/or schools of practice necessary for entry into a particular career in the information professions. Second, a review of the curriculum revealed that it was very flat, with many introductory-level courses and fewer advanced-level courses. While prerequisites existed, many faculty were waiving these. Thus, students were graduating with a breadth of knowledge but lacking sufficient depth in an area. The curriculum reform is aimed at helping students design academic plans that have depth so they can gain mastery in some area. These are just two examples of how we have used regularly collected or administrative data to assess academic programs and implement changes.

Systemic planning and evaluation are at the root of all the activities discussed in the remainder of this self-study. In all areas, we strive to be purposeful and data driven and at the same time keep our focus on the School's vision, mission, and goals.

Standard II CURRICULUM

School of Information Degree Programs

The University of Michigan School of Information (UMSI or the School) offers four degree programs: a PhD in Information, a Master of Science in Information (MSI), a Master of Health Informatics (MHI), and a Bachelor of Science in Information (BSI). Although this report focuses on the ALA-accredited MSI Program, brief descriptions of the other three degree programs are given below leading up to a detailed description of this report's focus, the MSI Program.

Doctoral-Degree (PhD) Program

The School offers a doctoral program leading to the PhD in Information. The PhD program accommodates a wide range of scholarly pursuits at the intersection of people, information, and technology. Because UMSI faculty come from a wide range of disciplines, the doctoral program is highly interdisciplinary, encouraging students to tread beyond traditional disciplinary boundaries in their quest to understand and improve the ways in which information is collected, organized, preserved, analyzed, shared, and used. Initially doctoral training involves working closely with faculty on research projects of mutual interest while drawing on the rich teaching resources of UMSI and the U-M generally to develop breadth across the vast array of information topics. Eventually doctoral students specialize, developing depth in their chosen area of inquiry through advanced study and research, conducting original, scholarly research that has the potential to push back the boundaries of knowledge and make a unique contribution to the information disciplines.

Since 2012, the Doctoral Program has averaged 53 students per year. Doctoral students are required to serve as a graduate student instructor (GSIs) for at least two courses, and many meet this requirement by GSI assignments to the School's graduate and undergraduate courses. Newly admitted students receive full funding for as long as they make satisfactory degree progress. Support is provided through a mix of graduate student research assistantships (GSRA) and graduate student instructor (GSI) positions. The PhD program is highly competitive; for the 2015 incoming class, 108 applications were received, 22 students were accepted, and 13 students enrolled.

Master of Health Informatics (MHI) Program

The Master of Health Informatics (MHI) Program, established in 2012, is a partnership of the U-M's School of Information and School of Public Health (SPH). The MHI Program's goals are to develop a new kind of information professional who helps clinicians, patients, and consumers navigate and manage increasingly more readily available streams of health information. Defining features of the program are its strengths in consumer informatics, population health applications, and system-related human and organizational issues. To fulfill the program's 52-credit requirement, students begin with core courses to build their knowledge of the healthcare system, health policy, information science, behavioral, cognitive, and organizational sciences while developing methodological skills in high-powered analytics, contextual inquiry, and project management. Through elective courses, MHI students develop a holistic approach to the field or focus on a specialty, such as biostatistics, epidemiology, health behavior and education, health management and policy, or information. A variety of internship experiences rounds out the MHI program, giving students opportunities to put their classroom knowledge to work, designing, developing, deploying, and handing off information systems in real-life settings. Now in its fourth year of existence, the MHI Program admitted 31 students for the 2015 incoming class and has graduated 33 students to date.

Bachelor of Science in Information (BSI) Program

UMSI began offering undergraduate education in 2008 as an equal partner in an initiative with the U-M's College of Engineering and College of Literature, Science, & the Arts. In 2014, UMSI launched its own Bachelor of Science in Information (BSI) Program, an upper-level undergraduate degree that U-M undergraduates complete during their junior and senior years. This richly interdisciplinary program encompasses the social and technical aspects of the digital revolution, giving students the opportunity to gain breadth and depth through rigorous coursework, frequent interaction with faculty, high-level practical experiences, and research engagement. During their freshman and sophomore years, students are encouraged to sample courses from the U-M's many schools, colleges, departments, and centers to satisfy their curiosity, deepen their interests, and hone new skills, while they enroll in a handful of basic information courses that introduce them to the field and develop their analytical and technical capabilities. In their junior and senior years, students focus almost exclusively on coursework in one of three defined BSI-Program paths: information analysis, user experience design, or social media, or they develop an academic plan for themselves in conjunction with faculty advisors. Graduates amass 120 credits, and successfully compete for jobs in science, business, government, education, technology, and entertainment. The BSI Program's first class of 2015 graduated 25 students, and the most recently admitted class of 2018 is expected to graduate 120 students.

Master of Science in Information (MSI) Program

The mission of the Master of Science in Information (MSI) program is to prepare students to understand the human, ethical, and technological dynamics of our constantly evolving information society, excel as professionals in a variety of information environments, lead in designing and building new user-centered solutions to society's most challenging information needs, and use their expertise to serve their communities, their professions, and the world.

MSI students must meet various requirements for graduation while amassing 48 credits for the MSI Program. Under the current curriculum, MSI students must fulfill both program and specialization requirements. The former involves three foundations courses (nine credits), one management course (three credits), one research methods course (three credits), at least one cognate course (three credits), and six credits of Practical Engagement. The latter entails a fixed number of required credits (12 to 18) which may involve one or more required courses, distribution requirements, and/or competency requirements. Students must choose at least one of these specializations:

1. Archives and Records Management (ARM)
2. Human Computer Interaction (HCI)
3. Information Analysis and Retrieval (IAR)
4. Information Economics for Management (IEM)
5. Library and Information Science (LIS)
6. Preservation of Information (PI)
7. Social Computing (SC)

Alternatively, students can choose the Tailored option and design their own academic plan under the guidance of a faculty advisor and with the advisor's approval of their written plans. Some students complete the requirements for more than one specialization. All MSI students receive the same degree, and their transcript lists the specialization(s) they successfully completed.

The MSI Program is in the midst of transitioning from its current specialization-based curriculum to a post-specialization curriculum that enlists mastery courses to designate requirements through prerequisite coursework, hereafter named future curriculum or mastery-based curriculum in this report. Nonetheless, the MSI Program remains a 48-credit program with a significant engaged learning component that gives students relevant experience in their desired area of expertise. The impetus for the transition as well as the planning, evidence, decision-making, and stakeholders involved in defining UMSI's future (F) curriculum are described in standards II.1, II.5, II.6, and II.7.

II.1 The curriculum is based on goals and objectives, and evolves in response to an ongoing systematic planning process involving representation from all constituencies. Within this general framework, the curriculum provides, through a variety of educational experiences, for the study of theory, principles, practice, and legal and ethical issues and values necessary for the provision of service in libraries and information agencies and in other contexts. The curriculum is revised regularly to keep it current.

(Responses to this standard are split into separate discussions II.1a to II.1e below.)

II.1a The curriculum is based on goals and objectives.

The Master of Science in Information is a professional-degree program that prepares students for emerging careers to meet the rapidly growing information-management needs of an increasingly interconnected world. As people, businesses, and society grapple

with the challenges and opportunities of the digital age, information professionals play a crucial role in analyzing, systematizing, and evaluating the massive resources generated by the digital revolution. At Michigan, we train students to be leaders and agents of change in a field that is evolving at unprecedented speed.

The goals of the MSI Program are to:

- *Recruit, admit, and yield a student body that is invested in the UMSI mission, is prepared to take advantage of the learning opportunities at UMSI, forms a diverse and valuable cohort for each other, and meets the quality expectations of the faculty.*
- *Deliver an educational experience in and outside the classroom that provides competitive advantage in the marketplace, creates a sense of social identification with the School and among each other, instills a professional identity, and provides both salient and strong curriculum.*
- *Ensure that our graduates are initially employed in the best positions or pursuing further graduate studies, eventually becoming leaders in their chosen fields.*

II.1b The curriculum...evolves in response to an ongoing systematic planning process involving representation from all constituencies.

This section describes the organizational infrastructure that supports ongoing and systematic planning in the School. The body specifically charged with curriculum planning is the Curriculum Committee and its successor, the MSI Program Committee. Standards II.1e, II.5, II.6, and II.7 detail revision of the curriculum to ensure its currency and viability, procedures for the continual evaluation of the curriculum, evidence and data to substantiate the evaluation of the curriculum, and how the results of the evaluation of the curriculum are systematically used to improve the program and to plan for the future, respectively.

Curriculum Committee (through spring 2012)

Through spring 2012, UMSI's Curriculum Committee was the key catalyst in the ongoing and systematic process of planning the master's curriculum. Making up this Committee were: (1) a faculty chair appointed by the associate dean for academic programs (ADAP); (2) five faculty members appointed by the ADAP; (3) two master's students elected by the School of Information Master's Association (SIMA, the School's association for masters-level students from both MSI and MHI programs); (4) ADAP (ex officio); and (5) a support staff member who took notes, issued reminders, duplicated materials, etc. Meetings took place every two weeks. Examples of Curriculum Committee business were:

- *Review and approve new course proposals*
- *Review and approve major modifications to existing courses*
- *Review proposals for new specializations*
- *Initiate reviews of existing specializations on a three-year cycle, evaluating a specialization's success in meeting its stated goals, student satisfaction, job placements for specialization graduates, and continuing relevance to UMSI's educational mission*

- *Monitor the balance of courses between semesters*
- *Review foundations courses or important aspects of them, e.g., learning objectives, teaching methodologies, lecture-discussion format, etc., in conjunction with instructors*
- *Assist the ADAP in handling curriculum-related conflicts (e.g., between courses, specialization requirements, etc.)*

Annually, the ADAP appointed specialization coordinators, usually faculty members who taught the specialization's key courses. The specialization coordinator consulted with faculty teaching the bulk of the specialization's courses, often forming specialization subcommittees to help plan, develop, review, and refine their specialization's curriculum. On occasion, the specialization coordinator formed subcommittees to study and research special issues, report findings to their full specialization committee, and make decisions. Coordinators then passed major curriculum recommendations to the Curriculum Committee for full committee handling.

Office of Student Affairs (OSA)

UMSI's Office of Student Affairs (OSA) is an important source of information and advisement for MSI Program Committee members and specialization committees who are deliberating curriculum issues. OSA issues internal demographic reports on UMSI students and graduates, status reports on recruitment and admissions, and survey data on entering, continuing, and graduating students so that those involved in decision-making processes have access to historical data, current information, and projections.

Three-Year Specialization Review Process

UMSI specializations have been subject to a three-year review process. Specialization coordinators, assisted by faculty teaching the specialization's courses, complete a Specialization Review Form that collects extensive information about the specialization including:

- *Rationale: Why is it important or valuable for UMSI to have this specialization?*
- *Learning objectives: What knowledge and skills are graduates expected to have?*
- *Survey data from the specialization's current students and new graduates, e.g., student expectations, their opinions regarding the specialization's success meeting its objectives, their suggestions for improvements, etc.*
- *Course enrollment data for the last two years*
- *Proposed changes to courses, e.g., new courses, course additions from other specializations, new required courses, course terminations, etc.*
- *Comments about instructional coverage, depth, and gaps*
- *Employment data listing job titles and employers of specialization graduates for the last two years*
- *Specializations that students want to or do take in addition to this one*
- *A final assessment of the specialization, e.g., strengths, weaknesses, challenges, new directions*

Completed forms are reviewed by UMSI's Curriculum Committee which submits its recommendations to the Associate Dean for Academic Programs (ADAP). Along with the UMSI Leadership Team (LT), the ADAP acts on the recommendations, such as staying the course, providing resources to add new faculty and courses, and eliminating specializations.

In winter 2012, LT suspended three-year reviews in favor of a comprehensive review of existing specializations and the specialization structure generally. The impetus for this review was both administrative and faculty sentiment that MSI students were not getting the most out of the master's degree under the specialization structure. On the administrative side, there was a considerable amount of administrative overhead and faculty effort to support each specialization. For students, the specialization structure was getting in the way of developing academic plans that targeted professional positions and helped students develop to their full potential.

Examining the Specialization Structure of the Master's Program Leading Up to the MSI Degree

In 2012, the Dean charged the ADAP with an examination of the master's degree program leading up to the MSI degree. Six events factored into the impetus for his examination (see appendix II.1):

- *Lessons learned from introducing new specializations in 2007*
- *Changing composition of the UMSI faculty*
- *Changes in the job market for students pursuing the MSI degree*
- *Changes in these students' interests*
- *Separation of our masters' programs from the Rackham Graduate School*
- *UMSI's involvement with four different degree programs (PhD, MSI, MHI, and BSI)*

In spring 2012, the ADAP issued an internal discussion paper that described the history of the specializations, documented numbers of students completing one or more specializations, and advised faculty to develop alternatives to the specialization structure (see appendix II.1). Shortly afterwards, UMSI faculty discussed the ADAP's discussion paper in a half-day retreat. Strengthening the argument for the School's transition away from the specialization structure were these working-paper findings about the specialization structure (see appendix II.1):

- *New specializations that were intended to be lightweight and flexible turned out not to be lightweight or flexible.*
- *Once established, specializations were hard to eliminate.*
- *The human resources required for specialization maintenance were costly, plus loss of faculty left some specializations without champions and important courses.*

At the retreat, the faculty voted to eliminate two under-staffed specializations (Information Policy and Community Informatics) and seek alternatives to the specializations structure.

Establishment of the MSI Program Committee in September 2012

Following on the heels of the retreat and in response to the newly established MHI degree, the LT dissolved the Curriculum Committee and established two separate faculty committees, the MHI Committee and MSI Committee, and charged them with program-wide responsibilities for the MHI Program and the ALA-accredited MSI Program, respectively. The goals of the new structure were to:

- *Decrease administrative overhead associated with the MSI degree (e.g., faculty time spent coordinating specialization tracks)*
- *Increase flexibility of the curriculum*
- *Support identification with the overarching MSI degree rather than with specializations (with the aim of reducing "tribalism" among MSI students)*
- *Establish a clear brand identity for the MSI Program*
- *Use our brand identity to attract prospective students and build loyalty among our alumni*

MSI Program Committee (September 2012 to the present)

In September 2012, the Associate Dean for Academic Affairs (ADAA) charged the newly established MSI Program Committee with the ongoing and systematic process of planning the master's curriculum. Making up this Committee is: (1) a faculty chair appointed by the ADAA), (2) three to five faculty members appointed by the ADAA, (3) ADAA (ex officio), (4) two master's students elected by SIMA, (5) one staff member from the Office of Student Affairs (OSA), and (6) one staff support member. Meetings take place one to four times a month. The MSI Program Committee continues the work of its Curriculum Committee predecessor pertaining to courses:

- *Review and approve new course proposals*
- *Review and approve major modifications to existing courses*
- *Monitor the balance of courses between semesters*
- *In conjunction with instructors, review foundations courses or important aspects of them, e.g., objectives, teaching methodologies, lecture-discussion format, etc.*

The MSI Program Committee has the additional responsibility of helping guide recruitment and marketing, admissions, scholarship selection, and providing general advice and input to OSA as needed.

The MSI Program Committee's most pressing and urgent business was the design of the post-specialization curriculum. Over the next two years, the ADAA's charge to the MSI Program Committee expanded to include:

- *Metrics for assessing student and program quality over time*
- *Approaches to increase the diversity of MSI students*
- *Ways of reducing tensions amongst among students from different specializations, students in foundations courses, and MSI students generally*

The MSI Program Committee deliberated on the Program's structure, studying internal documentation and statistics (e.g., demographics of MSI graduates by specialization, MSI course enrollment data, industry classifications, and job titles of MSI interns and graduates) and obtaining broad participation from across the School's constituencies (e.g., MSI students, alumni, employers, internship supervisors, UMSI faculty, and UMSI External Advisory Board). Issuing their plans in draft proposals to the UMSI faculty from time to time, this Committee sought faculty support for an approach that shifted the orientation from predetermined specializations to career outcomes.

MSI Curriculum Revision Task Force

Due to the expanded duties of the MSI Program Committee, the task of curriculum reform was too much for one committee. Thus, the AADA formed the new MSI Curriculum Revision Task Force and charged it with the task of new curriculum reform. Making up the Task Force was (1) a faculty chair appointed by the ADAA, (2) four faculty members appointed by the ADAA, (3) ADAA (ex officio), (4) one master's student elected by SIMA, and (5) one staff support member for handling clerical tasks. Meetings took place one to two times a month in the 2014-2015 academic year. In February 2015, the MSI Curriculum Revision Task Force issued its Proposal for Curriculum Reform describing the structure of the new MSI Program's curriculum to the UMSI faculty for discussion. The MSI Curriculum Revision Task Force incorporated faculty input into a subsequent draft that it issued to UMSI faculty in May 2015 for discussion and voting (appendix II.2).

UMSI faculty approved the Task Force's plan that proposed a curriculum structure governed by mastery classes and informed by career outcomes. Mastery courses require students to demonstrate mastery of the major theories, methods, and approaches to inquiry, and/or schools of practice necessary for entry into a particular career in the information professions. Each mastery course articulates the prerequisite knowledge, skills, and competency requirements that students must fulfill to gain enrollment. This articulation comes in four forms:

- Prerequisite MSI courses and course sequences that enable students to gain considerable depth in content that the employers in their desired careers expect.
- Prerequisite knowledge and skills that students must have to achieve success in prerequisite and elective courses.
- The characteristics of engaged learning opportunities that complement and reinforce the mastery course's prerequisite knowledge and skills.
- An enhanced orientation experience that introduces new students to the underlying principles of the MSI Program such as team-based collaboration, engaged learning, and cross-disciplinary thinking.

Independent of but strongly allied with mastery courses are academic plans. These are course selection and sequencing tools that UMSI faculty and OSA staff will formulate in the form of lists, visualizations, stories, flowcharts, and scenarios describing information-intensive careers and the relevant courses, internships, alternative experiences, and co-curricular activities MSI students should pursue for each plan. There is no fixed number of formal, named plans, and we anticipate that even MSI students will contribute to

published academic plans. Additionally, post-graduation analysis of student transcripts will enable faculty and staff to track the actual pathways students take through the future MSI curriculum, demonstrating their waxing, waning, and holding steady so that we can determine which published plans to retire, amend, or simplify.

MSI Program Committee's Implementation of the New Mastery-Based Curriculum

In September 2015, the AADA disbanded the MSI Curriculum Revision Task Force and charged the MSI Program Committee with the implementation of the future curriculum. In response, the MSI Program Committee issued an invitation to MSI faculty to propose mastery courses for the future curriculum. In March 2016, this Committee invited mastery course authors to Mastery Course Planning Meetings. Curriculum experts from the U-M's Center for Research on Learning and Teaching (CRLT) led these meetings which were jointly planned by the MSI Program Committee, AADA, and CRLT experts. In the meetings, mastery course authors partnered with fellow UMSI faculty, forming three- to four-person interdisciplinary teams to

- Develop, strengthen, and refine the interdisciplinary nature of their mastery course proposals,
- Identify the prerequisite knowledge, skills, and competency requirements that students must fulfill to gain enrollment to their preferred mastery courses as well as potential academic plans to the mastery courses, and
- Formulate more than one career outcome that students enrolled in their mastery courses would be likely to pursue.

Their efforts were successful, formulating seven mastery course drafts along with their prerequisite courses and course sequences. Their planning work forms the basis for piloting mastery courses in the 2016-2017 academic year. The partnership with CRLT also helped the MSI Program Committee to develop a process for future identification and development of mastery courses.

II.1c The curriculum provides a variety of educational experiences.

Whether pursuing the MSI degree via the current or future curriculum, all MSI students must meet the Program's minimum requirements, earning:

- *A total of 48 credit hours while maintaining a minimum average of B (3.0 on a 4.0-point scale),*
- *A minimum of 6 and maximum of 9 Practical Engagement Program (PEP) credits, and*
- *A minimum of 3 and a maximum of 6 cognate credits (from graduate courses external to or cross-listed with SI) with a minimum grade of B-.*

While the current curriculum's specialization structure and the future curriculum's mastery-course structure ensure that students achieve expertise in certain content areas, the MSI Program features a variety of in- and out-of-class engaged learning experiences and opportunities that make each student's academic plan through the program individual, varied, and unique. Descriptions of these experiences and opportunities

follow, beginning with MSI-program requirements such as the Practical Engagement Program, the specialization-based curriculum, the mastery-based curriculum, and ending with co-curricular activities such as Alternative Spring Break, Ann Arbor Data Dive, and Entrepreneurship Program.

Table I.1 connects the many components of the current curriculum and future curriculum plus their in- and out-of-class engaged learning experiences and opportunities to MSI core competencies.

Practical Engagement Program (PEP)

The Practical Engagement Program commits all MSI students to engaged learning, earning at least six Practical Engagement Program (PEP) credit hours. PEP integrates the application of knowledge and skills to specific problems outside the classroom and requires students to combine what they learn in the classroom with what they observe and experience in the "real world." Although most students earn PEP credits through summer internships, other students seek a variety of placements, amassing their PEP credits year round.

Supporting the PEP Program is the UMSI's Career Development Office (CDO) with professionally trained staff members eager to help students develop a strategy for securing an internship and help them use the iTrack online recruiting system. Students search iTrack for internships by industry area, preferred job function(s), geographic location, and/or by keyword search. Students can also explore the broad array of other students' internships by viewing online PEP internship exhibits (https://seelio.com/g/pep). These examples of internship placements—at LexisNexis conducting user testing on flagship products; at the Gerald R. Ford Presidential Library digitizing photographs, negatives, and transparencies; and at Oracle designing apps for iPhones and iPads for its human capital management products—reveal the rich and varied experiences students receive through PEP.

While PEP is the required engaged learning component of both current and future curricula, engaged learning is prominent and pervasive in the School's many classroom and co-curricular activities that are described following this standard's discussion of the MSI curriculum.

Cognate Credits: Reaching Beyond Information

All MSI students must complete a minimum of 3 external cognate credits and may complete a maximum of 6 external cognate credits. They are free to choose any graduate-level course from other U-M schools, colleges, departments, or centers. Cross-listed courses that are owned by another unit may also count as cognate credit. MSI students' favorite cognate classes come from a wide range of disciplines (in parentheses): Marketing Research Design and Analysis (Business), Getting the Documents to Speak (History), Principles of Geographic Information Systems (Natural Resources and Environment), and Grantwriting (Social Work).

Current Specializations-Based Curriculum

The School's current curriculum has these four additional requirements:

- *3 required foundations courses: Information in Social Systems (500), Contextual Inquiry and Consulting Foundations (501), and Networked Computing: Storage, Communication, and Processing (502),*
- *At least 3 graduate credits in management,*
- *At least 3 graduate credits in research methods, and*
- *At least 1 MSI specialization's requirements. These requirements entail a fixed number of required credits (12 to 15) which may involve one or more required courses, distribution requirements, and competency requirements in programming and/or statistics.*

Foundations Courses

Foundations courses enable students to develop a common understanding of the principles, theories, methods, research, values, and practices of fields squarely in the purview of information such as computer science, economics, history, information science, law, library science, psychology, and social policy. They also prepare students for advanced and elective courses in each MSI specialization. Titles, course numbers, and content descriptions of foundations courses are:

Information in Social Systems (500)

This foundations course provides students with concepts that are essential for further MSI coursework and for their professional careers. It presents a distinctive synthesis of important ideas about the use and value of information from related and allied fields. The course's lectures, case studies, discussion topics, readings, and writing assignments are designed to deepen and broaden the way students approach their professional work. This course also presents a larger framework that links important course concepts and provides repeated opportunities to relate these concepts to the kinds of issues that arise in the information world. It is a synthesis of many theories, aimed at the requirements of practice. Finally, this foundations course is designed to open new doors, sparking students' interests in aspects of the information enterprise unfamiliar to them or that they thought were beyond their reach.

Contextual Inquiry and Consulting Foundations (501)

Students work in teams, planning and managing a team project with an external client. Specifically, they investigate information use in real-world contexts and conduct field research to inform the design of a workflow, application, product, or program. Along the way, students gain experience in collaborative work; manage project timelines, workloads, and responsibilities; conduct interviews; observe work practices and information usage; synthesize qualitative data; and present their recommendations to their clients.

Networked Computing (502)

This is a survey course covering a broad range of technology topics at a high level and aimed at students with no prior technical skills other than the general use of a computer. The basics of computer architecture, programming, software development, Internet technologies, web technologies, service-oriented architecture, database modeling, web

search technology, and security of information systems are covered, and upon completion of the course, students should be comfortable in topical courses that assume basic technology knowledge, be able to participate as a team member in software analysis, design, development, and deployment, and be able to act as a facilitator between technical and non-technical staff. (Students entering UMSI with programming expertise who successfully petition for a 502 waiver enroll in their choice of an advanced programming course.)

Distribution Requirements: Management, Research Methods, Programming and Statistics

All students pursuing the MSI degree via the current specialization-based curriculum must complete at least one management and one research distribution requirement. Added to the HCI, IAR, and SC specializations is a programming distribution requirement, and added to the IAR, IEM, and SC specializations is a statistics requirement. To fulfill the management distribution, students must earn at least three credits choosing one or more of these seven courses:

- *Information and Control (523) prepares students to recognize and make effective use of power.*
- *Principles in Management (530) provides a foundation in management for information professionals interested in working in a wide range of information-intensive organizations.*
- *Theories of Social Influence (534) introduces students to social influence theories so they can incorporate what they learn into systems design or team management.*
- *Choice Architecture (617) informs future information system professionals, designers, and managers about human decision rules and their associated biases so that these insights can be incorporated into design, business, or management strategies.*
- *Managing the Information Technology Organization (627) teaches students the basics of managing an information technology unit.*
- *Managing Health Informatics (661) prepares students to take on management roles and responsibilities in a wide variety of health organization settings.*
- *Entrepreneurship in the Information Age (663) develops students' entrepreneurial mindset and savvy so that they can turn ideas into impact.*

To fulfill the research methods distribution, students must earn at least three credits choosing one or more of these seven courses:

- *Empirical Methods for Health Informatics (525) examines the application of measurement, methods, management, technology, and analysis of information to answer questions and solve healthcare, population health, personal health, healthcare delivery, and health economics problems.*
- *Introduction to Statistics and Data Analysis (544) introduces students to basic statistical concepts, tests, and procedures. Required for IAR, IEM, and SC specializations.*
- *Game Theory (563) teaches students how to anticipate, formulate, and analyze other people's motivations so that they can incentivize them to act in ways that further the objectives of an organization, community, or society.*

- *Data Manipulation (601) enables students to harvest, process, and aggregate data in preparation for data analysis.*
- *Exploratory Data Analysis (618), is a follow-up to 601, in which students learn exploratory data analysis techniques so they can make sense of and begin to see patterns in huge, intractable quantities of data.*
- *Needs Assessment and Usability Evaluation (622) enables students to evaluate the usability, usefulness, and acceptability of interactive software systems.*
- *Research Methods for Information Professionals (623) gives students opportunities to conduct research studies, posing questions, formulating study designs and data collection instruments, collecting and analyzing data, and writing up the results.*

Students in HCI, IAR, and SC must fulfill a programming distribution, taking 502 first, then choosing two courses from this list:

- *Design of Complex Web Sites (539) equips students with all the necessary skills for building and deploying web sites.*
- *Programming I (Java) (543) teaches students Java and Java programming, preparing them for future courses in data structures, algorithms, and databases.*
- *Database Application Design (664) is an introduction to database management systems (DBMS) that covers theoretical and practical aspects and database design, use, and implementation using the database language SQL.*

Specializations

All students pursuing the MSI degree via the current specialization-based curriculum are required to complete the requirements for at least one specialization; however, about one-quarter of MSI students complete two. Table II.1 summarizes specialization details, describing the essence of specialization content, required specialization-specific courses, number of required specialization-specific credits, number of available specialization credits, and examples of job titles that graduates get.

Table II.1. Current Specializations

Specialization	Required Spec. Courses	# of Required Spec. Credits	# of Available Spec. Credits	Examples of Job Titles
Archives and Records Management (ARM). Solving the problems of online access and digital preservation to traditional archival materials and electronic records.	Understanding Records and Archives (580)	15	21	Archivist, librarian, film and video archivist, digital asset manager, data librarian, electronic records manager, digital archivist, metadata specialist, project archivist, records management analyst

Specialization	Required Spec. Courses	# of Required Spec. Credits	# of Available Spec. Credits	Examples of Job Titles
Human Computer Interaction (HCI). Designing and developing new technologies for business, education, entertainment, and social interaction that work properly and are compelling and easy to use.	Introduction to Interaction Design (582) Fundamentals of Human Behavior (588) Needs Assessment and Usability Evaluation (622)	15	67	User interface designer, user-experience researcher, user experience designer, usability analyst, information architect, usability engineer, application developer, interaction designer, web developer, human factors engineer, software developer, entrepreneur, user researcher, design researcher, software engineer
Information Analysis and Retrieval (IAR). Examining how information is stored, searched, and analyzed in computer systems and utilizing natural language processing, database design, and text, web, and network analytics to facilitate information retrieval.	(None)	15	30	Web analyst, search engineer, competitive intelligence analyst, market research analyst, SEM specialist, SEO analyst, natural language engineer, information analyst, database developer
Information Economics for Management (IEM). Effecting an alignment between user and system goals in the design and development of interactive systems.	Game Theory (563)	12	15	Business analyst, systems analyst, product design specialist, IT consultant, product analyst, data analyst, auction designer/manager, project manager, systems designer, incentive engineer, fundraising systems developer, social networks engineer, CIO
Library and Information Science (LIS). Targeting the forces governing the flow of information especially its origins, collection, organization, storage, retrieval, interpretation, transmission, transformation, and use, and framing these forces within the dynamics of information technologies.	Information Resources and Services (647)	15	42	Reference librarian, instructional librarian, children's librarian, systems librarian, metadata librarian, digital service librarian, access services librarian, health librarian, research librarian, database manager, information analyst, web developer, information architect, school librarian, systems analyst, research analyst

Specialization	Required Spec. Courses	# of Required Spec. Credits	# of Available Spec. Credits	Examples of Job Titles
Preservation of Information (PI). Acquiring expertise in preservation, digital curation, standards, planning and policy setting for the purpose of making information packages accessible online now and in the future.	Preservation Administration (581)	15	16.5	Preservation officer, digital preservation specialist, data/ digital curator, web archivist, digital collections manager, digital preservation project manager
Social Computing (SC). Harnessing the power of online social interactions into the design of new and improved systems and services.	(None)	12	21	Online community manager, social software developer, social media strategist, product manager, entrepreneur, web social media editor, corporate blogger, user experience designer, e-marketing associate, product manager, community organizer, management consultant, web analyst

The number of required specialization credits is either 12 (usually fulfilled by enrolling in four 3-credit courses) or 15 (usually fulfilled by enrolling in five 3-credit courses). The number of available specialization credits ranges from the number of required specialization credits to two, three, or four times this number due to the viewpoints of the UMSI faculty teaching in the particular specialization, some taking a focused approach toward their specialization (resulting in fewer credits) and others taking a broad-based approach toward their specialization (resulting in more credits).

Future Mastery-Based Curriculum

Beginning in the 2017-2018 academic year, the MSI Program fully implements the future curriculum, keeping the PEP and cognate requirements and channeling the foundations courses, management distribution, research methods distribution, programming distribution, and specialization requirements into a mastery-course structure. MSI students will still reap the benefits of the current curriculum but the mastery-based curriculum will present the MSI Program from the broad perspective of available information-centered careers and the knowledge, skills, and expertise that students must acquire to successfully contend for jobs that are the launching pads for those careers.

The future curriculum has these six features (in reverse chronological order):

vi. Mastery courses requiring students to demonstrate synthesis of the major theories, methods, and approaches to inquiry, and/or schools of practice necessary for entry into a particular career in the information professions. Mastery is defined as a student's ability to do a task, solve a problem, produce an outcome, design a product, deliver service, etc., at a professional level.

v. A summer internship where students practice knowledge and skills developed in both prerequisite and advanced courses and develop new knowledge and skills on the job that they will need for their chosen career outcome.

iv. Advanced courses and course sequences, delivering content that becomes increasingly more advanced and specialized so that students gain the knowledge, skills, and competencies they'll need to achieve the learning objectives of their chosen mastery course and to build strength in additional areas of interest.

iii. Prerequisite skills courses. Basic courses especially for acquiring skills such as research methods, statistics, programming, and project management.

ii. An augmented orientation to the MSI Program in which new students participate in an information design challenge that introduces them to the types of problems that MSI graduates will encounter and provides them with resources for solving them.

i. Recommended and elective courses and course sequences that round out students' chosen academic plans, strengthen the foothold students have achieved in their mastery of a certain area, and/or fulfill the MSI Program's 48-credit requirement.

Both mastery courses and career outcomes guide students in their selection of courses and how to sequence these courses across a full-time, two-year master's program. Sequencing is especially important so that students can achieve the depth that their future jobs and overall career goals will require.

The future mastery-based curriculum is a work in progress. In the subsections that follow, features of the future curriculum are described for the first seven mastery courses. By the 2017-2018 academic year, we envision approximately ten to fifteen mastery courses being available to MSI students. MSI students who begin in the 2015-2016 and 2016-2017 academic years with career interests that overlap these mastery courses will be encouraged to pilot test them in their second year in the MSI Program while the MSI faculty as a whole transitions from the specialization-based to the mastery-based curriculum in the 2017-2018 academic year. The discussion that follows about the future MSI curriculum focuses on the initial five mastery courses that will be pilot tested in the 2016-2017 academic year.

MSI Orientation Experience (MORE)

The MSI Orientation Experience (MORE) is an augmented orientation to the MSI Program where faculty and staff initially brief new students on the practical concerns of everyday student life such as choosing courses, academic advising, searching for internships, using the electronic course management system, then challenge the students to actively participate in an information-based design problem that introduces them to the types of information problems that MSI graduates will encounter and resources they use to solve them. MORE's goals are to:

- *Introduce students to a range of real-world problems that can be addressed by professionals with an MSI degree,*
- *Broaden students' understanding of different career outcomes and opportunities to gain new skills and knowledge, helping to increase cross-disciplinary thinking,*

- *Motivate students' classroom learning by helping them understand where various topics (that may seem disconnected in formal classroom contexts) fit into larger real-world problems, and*
- *Introduce MSI students to the peers and faculty across the program, helping to increase program cohesion.*

MORE's feature activity is the information challenge where students with different interests and career aspirations work together in groups on solutions to information problems. Specifically, groups collaborate over a two-day time period investigating an information problem. Besides consulting library resources, they are encouraged to draw on the expertise of second-year students, select MSI faculty, and U-M librarians who are in close proximity to facilitate their work. Eventually, student groups propose an information tool or service that factors into their solution to the problem and present their work to their fellow new students and facilitators.

Prerequisite Skills and Competencies

There are two types of prerequisites. The first type refers to skills and competencies, such as writing, public speaking, and critical thinking, and extends to embracing a particular mindset, orientation, or point of view such as a civic orientation, a people-centered mindset, the ability to tolerate ambiguity, and a commitment to helping people resolve their information needs. The second type builds technical knowledge and professional skills in areas such as research methods, statistics, management, and programming. Students may lightly tread on the former in coursework but they are more likely to encounter them through the MSI Program's many engaged learning opportunities, such as the Practical Engagement Program, Alternative Spring Break, and the Entrepreneurship Program. Addressing the latter is more straightforward—taking one or more research methods, statistics, management, and programming courses that are required courses in the current curriculum but will be prerequisite, recommended, or elective courses in the future curriculum.

Prerequisite Courses, Course Sequences, and Mastery Courses

Prerequisite courses build on prerequisite skills and competencies. These courses feature technical, specialized, professional, and disciplinary knowledge to launch students on careers across the range of the information professions where UMSI has faculty expertise and a strong reputation. Course sequences are intended to give students depth and advanced knowledge of a substantive area, assigning students projects and tasks that become increasingly more complex and technical and with the expectation that they will have to draw on knowledge from early-sequenced courses to complete coursework in later-sequenced courses.

Mastery Courses

Mastery courses are special types of courses that require students to demonstrate synthesis of the major theories, methods and approaches to inquiry and/or schools of practice necessary for entry into a particular career in the information professions. Mastery is defined as a student's ability to do a task, solve a problem, produce an outcome, design a product, deliver a service, etc., at the level comparable to or exceeding a well-launched beginner in a field, profession, or discipline. Every new student in the cohort starting in fall 2017 will be required to complete one, and only one, mastery class to earn the MSI degree. Charged with a mastery course, instructors assume the role of a mentor, a

facilitator, or an advisor, and their courses are driven by problem analysis, information gathering and sharing, creative solutions for a project, or a combination of these elements.

The MSI Program's rollout of mastery courses takes place over a two-year period beginning in the 2016-2017 academic year with the first five mastery courses below and additional two mastery courses in the 2017-2018 academic year. Afterwards, MSI students will choose from approximately 10 to 15 mastery courses. Below are listed the first seven mastery courses, prerequisite courses, course sequences, recommended courses, prerequisite knowledge and competences, and titles of professional jobs that students who complete the particular mastery course are likely to pursue.

- Civic Technology (CT): Students work closely with municipal and civic leaders in a Michigan city in order to resolve an information problem through applied user research, prototyping, system development, and implementation. Each student group will deliver a sustainable, useful, and usable information tool or service to the partner city in which they are working.
    - » Prerequisite courses and/or course sequences: All three courses 501, 582, and 588, and the student's choice of 538, 622, or GIEP
    - » Recommended courses: 506, 529, 612, 618, 657, 658
    - » Prerequisite skills and competencies: experience and ease speaking to groups and individuals, a civic orientation
    - » Professional jobs: user experience researcher, user experience designer, chief information officer of a non-governmental organization, urban informaticist, interaction designer, communications officer, public sector researcher

- Instructional Practice in Information (IPI): Students build on the foundational skills in learning science theory, planning for, facilitating, and evaluating learning acquired in SI 643 and other courses and deploy those skills in a practicum setting. Students partner with professional mentors in software firms, instructional technology settings, schools, libraries, and museums for real-world teaching and learning practice, gaining face-to-face and virtual experience in effective contemporary instructional practices.
    - » Prerequisite courses and/or course sequences: All five courses 501, 551, 643, 647, 665, and the student's choice of 548 or 549
    - » Recommended courses: 622, 623, 636, EDUC 503
    - » Prerequisite skills and competencies: a people-centered mindset; basic technology skills for creating websites, video tutorials, and webinars; an understanding of teaching versus learning; experience and ease speaking to groups and individuals, previous in-class experience in various instructional modalities
    - » Professional jobs: academic librarian, public librarian, education data analyst, product developer, museum educator, software designer, computer user support, user support specialist, end user support specialist

- Developing Social Computing (DSC): This course provides students an opportunity to develop and demonstrate mastery in user research, application design, and system implementation by creating novel social computing applications. This course

challenges students to build on prior coursework in human-computer interaction and programming to apply and adapt their existing skill sets to identify and solve the problems that arise in the design of a new social computing system, including the areas of user experience, technical implementation, and stakeholder communication. It is intended for students who want to go beyond prototypes to understand the full experience around creating and launching a new system.

  - » Prerequisite courses and/or course sequences: 501, 506, 507, 582, 588, 622, and the student's choice of 534 or 664
  - » Recommended courses: 529
  - » Prerequisite skills and competencies: creative confidence in approaching new technologies, systems-based practice, ability to frame a problem and possible solution(s), knowing when to take feedback and when to respond with more explanation and/or justification
  - » Professional jobs: UX designer, UX engineer, project manager

- Social User Experience (SUE): This course will require students to demonstrate mastery of designing, conducting, and evaluating user experience research. Students will synthesize methods from human-computer interaction with theories from social science to evaluate and redesign a technology or product. Aligned with industry best practices, students will be expected to work in a fast-paced, collaborative environment and to demonstrate independence and leadership. Students must critically assess the impact of design decisions on individuals and society, addressing issues like accessibility, diversity, safety, harassment, and other relevant social issues.
  - » Prerequisite courses and/or course sequences: All four courses 501, 529, 582, 622
  - » Recommended courses: 534, 538, 588
  - » Prerequisite skills and competencies: a vision about the social impact of technology, how and why to apply UX methods and social theories
  - » Professional jobs: UX researcher, product manager, project manager

- Big Data Analytics (BDA): This course requires students to demonstrate mastery of data collection, processing, analysis, retrieval, mining, visualization, and prediction. Students synthesize methods from information retrieval, statistical data analysis, data mining, machine learning, and other big-data related fields. They work on semester-long projects that deal with industry-scale datasets and solve real-world problems. Aligned with best industry practices, students are expected to work in a fast-paced, collaborative environment and to demonstrate independence and leadership. Students must be able to create and use tools to handle very large transactional, text, network, behavioral, and/or multimedia datasets.
  - » Prerequisite courses and course sequences: All six courses 501, 506, 507, 544, 618, and 671, and the student's choice of two courses 561, 608, 649, and/or 650
  - » Recommended courses: EECS 545, EECS 584

- » Prerequisite skills and competencies: programming, data manipulation, statistics, being able to work in UNIX environments and use state-of-the-art data mining and statistical analysis tools
- » Professional jobs: data analyst, data scientist, data researcher, and data engineer in major IT-related companies or data analysis-related positions in traditional industries

- Digital Repository Architecture and Implementation (DRA&I): Students define and apply a metadata scheme to selected digital/digitized artifacts and build a digital repository that would interoperate with comparable repositories and that everyday people and/or domain experts could query to find relevant artifacts/information.
  - » Prerequisite courses and/or course sequences: All three courses 501, 506, and 507, and the student's choice of 629, 658, or 666, and the student's choice of 650 or 664, and the student's choice of 620 or 632
  - » Recommended courses: 561, 580, 582, 665, 671
  - » Prerequisite skills and competencies: decision-making skills; strong written, verbal, and interpersonal communication skills; critical thinking skills; meticulous attention to detail while keeping the bigger picture (goals, objectives, mission) in mind; logical thinking
  - » Professional jobs: digital repository manager, digital project librarian, search engineer, metadata librarian, systems designer, systems engineer

- Digital Curation (DC): This mastery course prepares students for careers in data management, access, and preservation in many different venues: research libraries as data services librarians and digital collections managers, digital archives and domain repositories (e.g. ICPSR, NOAA and NASA data centers, NCAR), the publishing and entertainment industry as digital product managers, corporations and not-for-profits as internal data management specialists, and as consultants. Students will be prepared to participate in, manage, and create elements of the rapidly developing digital curation infrastructure that is the outcome of efforts by industry, government, and not-for-profit entities.
  - » Prerequisite courses and/or course sequences: All six courses 501, 506, 507 622, 623, and 625, and the student's choice of 580 or 647
  - » Recommended courses: 632
  - » Prerequisite skills and competencies: creative confidence in approaching new technologies, experience or academic familiarity with the research practices of a research domain (e.g., materials science, sociology, etc.)
  - » Professional jobs: research data librarian, digital collection manager, digital curator, digital archivist

The benefit of the future curriculum's mastery course architecture is its potential for cross-fertilization across the broad spectrum of our School's course offerings. No longer are courses stove-piped, like they are in the current curriculum, appearing amongst the

required or recommended courses of one, and only one, specialization. Instead, they appear across several sequences leading to mastery courses. Table II.2 shows this cross fertilization in tabular form with one prerequisite course (501) across all seven mastery courses and the programming sequence across four mastery courses. Still in the early stages of future curriculum development, UMSI faculty expect more cross-fertilization to emerge in the course of proposing the future curriculum's full slate of mastery courses. Plus, this cross-listing has the potential to be even more dramatic when prerequisite and recommended courses for career outcomes are listed alongside one another.

Table II.2. Prerequisite Courses Across Multiple Mastery Courses

Course Name	CT	IPI	DSC	SUE	BDA	DRA&I	DC
Contextual Inquiry and Consulting Foundations (501)	X	X	X	X	X	X	X
Programming (the course sequence 506 and 507)			X		X	X	X
Interaction Design (582)	X		X	X			
Human Behavior (588)	X		X				
Exploratory Data Analysis (618)					X		X
Needs Assessment and Usability Evaluation (622)	X		X	X			X
Information Retrieval (650)					X	X	
Database Application Design (664)			X			X	
Information Resources and Services (647)		X					X

Engaged Learning through the Initiative for Information Impact (I3) Program

UMSI's co-curricular engaged learning activities are supported through its Initiative for Information Impact Program (I3). Engaged learning is experiential, action-based learning that helps students develop not only intellectually, but also professionally and personally, with the expectation that the momentum of their engaged learning experiences will enable them to hit the ground running in their first professional position and beyond. A major theme of the MSI Program, engaged learning is manifest in a wide range of learning opportunities (for students in either the current or future curriculum) that this section features. Generally, I3 activities engage MSI students in information and technology-related service projects and action-based learning during the course of the MSI Program. I3's goal is to locate practical experience, interdisciplinary work and a commitment to improving lives at home and abroad at the very heart of the School's curriculum. The School has invested significantly in both curricular and co-curricular engaged learning opportunities for students, giving them first-hand experience shaping real-world issues and interacting with real-life clients and organizations. Below are details of this program's international, domestic, and in-class activities.

International

The need for innovative information tools is a global challenge that MSI students are willing and prepared to tackle through the Global Information and Engagement Program (GIEP) and Peace Corps Programs.

Global Information Engagement Program (GIEP)

The Global Information Engagement Program (GIEP) is an innovative approach to learning that partners non-profit, research, and educational organizations in an international setting with carefully selected student teams. This program seeks to

operationalize their skills into the development of sustainable information management practices that have positive societal impact. Project teams from the MSI Program and U-M graduate programs generally spend a semester studying and creating plans for the implementation of an identified information challenge that has high social impact value.

GIEP 2016 moved to Cape Town, South Africa, after its initial launch in India in 2014 and 2015. Student teams leveraged their emergent skills in content management and delivery, contextual inquiry, needs assessment, product ideation, consultation, and a deep understanding of the complex relationships between people, information, and technology to address a context sensitive information challenge (management, access, design ICT-related) faced by participating heritage and NGOs. Student projects solved difficult information-related problems in areas such as healthcare, urban living, and education.

Peace Corps Programs

The Peace Corps Master's International Program enables MSI students to embed 27 months of Peace Corps service into their master's program and apply their skills across fields like agriculture, environment, education, and health. Although Peace Corps service adds two years onto a student's MSI Program, the student receives language, cross-cultural, and technical training prior to embarking on his or her Peace Corps assignment and the student's engagement in an international academic project while volunteering in the host country could lead to ventures involving technology and computer learning, application development, communication flow development, the development and enhancement of libraries, and health records management. Although the Peace Corps discontinued its Master's International Program in 2016, Peace Corps veterans applying to UMSI are now encouraged to apply for the Paul D. Coverdell Fellows Program. The Coverdell Fellows Program provides a substantial funding package to Peace Corps alumni who also engage in service during their master's program. Such opportunities draw students with a high degree of alignment with UMSI's public service mission. Standard II.2.4 features UMSI's Coverdell Fellows who describe their Peace Corps service and its impact on their future professional careers.

Domestic

On the domestic front are seven educational experiences, some involving coursework and others free of coursework but providing opportunities for students to demonstrate knowledge and skills developed in the classroom.

Alternative Spring Break

Initiated in 1999, Alternative Spring Break (ASB) was the foundational I3 project. During spring break, students work in teams in public sector and non-profit organizations in nearby Detroit or they travel to Washington, DC or Chicago where they work in organizations there. UMSI, with the help of external sponsors and donors, defrays students' travel and lodging costs. ASB focuses on public service, challenging students to develop professional skills through the connection of information concepts and practices in an immersive, experiential environment, impact the community through service to an organization and its constituents, and lay the foundation for becoming a socially engaged information professional.

A2 Data Dive

The A2 Data Dive is a student-driven initiative, where community non-profit organizations volunteer their data for MSI students and U-M students generally to analyze

in search of answers to questions that help the organizations pursue their mission. Student volunteers organize the A2 Data Dive, sponsoring monthly workshop-style boot camps to bring data-analyst newbies up to snuff on the data analysis techniques they'll deploy during the dive, recruiting organizations and identifying interesting data and research questions, and mobilizing student teams during the day-long data dive held annually in November. Table II.3 lists non-profits participating in recent dives and the objective(s) of the data analysis students performed on their data.

Table II.3. Organizations Participating in Data Dives

Organization	Objectives
Ozone House	Ozone House programs save Washtenaw County money
Huron River Watershed Council	An interactive map showing species over time along the Huron River, a major waterway in southeast Michigan, to assess wetland degradation and environmental issues
Food Gatherers	Any trends or interesting anomalies students uncover during their exploration

Citizen Interaction Design (CID)

Citizen Interaction Design (CID) is a novel approach to learning that partners local governments with teams of U-M students, and together they develop new information tools that help foster citizen engagement. Beginning in Jackson, Michigan, CID expands to two more Michigan communities in 2016. Like UMSI's Entrepreneurship Program, CID offers students a wide variety of learning opportunities. Enrolling in the master's-level course Citizen Interaction Design (538) exposes students to the complete design cycle—discovery and user research, design and development, user testing, refinement, and hand-off—in the course of building their information tool. Summer internships and reading groups are alternatives to this course. CID provides students with unique opportunities to practice interaction design in a real setting, create and execute plans for technology hand-off and sustainability, reflect on their identity as citizens in the information age as well as explore the meaning of community and civic engagement in the context of the digital environment. Table II.4 describes several CID projects that UMSI students have turned over to the Jackson-area organizations they worked with.

Table II.4. CID Projects for Jackson, Michigan

Project Name	City Division	Description
Distressed Property Report	City of Jackson	A publicly accessible database that shows the status of blighted properties in the condemnation process
Living History	Jackson Historic District Commission	Information tools that engage citizens in the identification of historic homes and in the home renovation process
Art Finder	Jackson Arts and Cultural Alliance	Information tool that enables citizens to identify existing and potential public art locations
I Can't Prove I'm Me	Jackson Interfaith Center	Homeless people complete a simple online form that responds with an action plan for obtaining IDs
Sustainable Open Data Portal	Jackson's mayor and several city departments	The portal lets the city share its datasets, freely and without restrictions, with citizens who analyze the data to grow their businesses and help the community thrive

Community Impact Projects

During the academic year, non-profits and public-oriented firms can request assistance from individual students and student teams on an ad hoc basis through the School's Community Impact Projects. These are information-related projects for organizations that don't have the in-house skills, resources, or time to accomplish them on their own. For example, projects have given students hands-on experience organizing and cataloging print and digital collections, digitizing records and artifacts, instructing youth and underserved populations on technology use, developing computer applications, and analyzing information flows and providing recommendations for increased efficiency.

Entrepreneurship Program

Founded in 2014, the UMSI's Entrepreneurship Program traces its roots to entrepreneur and Associate Professor Emeritus Victor Rosenberg who developed ProCite, the precursor to today's modern citation management systems Zotero, RefWorks, and Mendeley, later selling it to the Institute for Scientific Information, a division of Thomson Reuters. Rosenberg initiated the School's Entrepreneurship course. Succeeding him is Ehrenberg Director of Entrepreneurship Nancy Benovich Gilby, who draws on her experience leading ten start-ups that resulted in eight exits or outcomes providing a return to the original investors and shareholders. Assisting her is Clinical Associate Professor of Information and Associate Director of the Entrepreneurship Program, Walt Borland, who leverages his experience as the president and CEO of seven different emerging growth companies, from garage-startups to global operations generating millions in annual revenue. The School's new Engagement Center is home to the Entrepreneurship Program, where modular furniture invites students to rearrange large open spaces for lecture presentations, small group discussion, or collaboration.

The goal of the UMSI's Entrepreneurship Program is to inspire and support every student across all four of the School's academic programs to participate in at least one passion-led, self-driven innovation project (PLSDIP) during their tenure at UMSI. The Program provides several academic plans for enabling students to do so. The most formal approach is enrolling in the course Entrepreneurship in the Information Industry (663) where students identify an area of passion, work closely with actual target customers to critically evaluate a problem space, engage in the processes of customer discovery and design thinking within an Agile team model.

Alternatively, entrepreneurial-minded students can volunteer to work in the UX Design Clinic (UXDC) where they work with real-world clients directly, conducting user research and testing, creating wireframes for websites and mobile applications, and providing recommendations for process and workflow design. Piloted in the 2015-2016 academic year within the UXDC's purview was the Digital Scholarship Incubation Lab. The U-M Library provided the lab's physical space and infrastructure (e.g., access to research tools and workstations) in Harlan Hatcher Graduate Library's Special Collections Library, staff facilitation, digital collections and primary source materials, and digital research expertise (e.g. data visualization, programming, text mining, and metadata expertise), and welcomed faculty, librarians, and PhD students to submit ideas that teams of MSI students negotiated and prototyped for them.

Students sure or unsure about their entrepreneurial aspirations can sample the School's Entrepreneurship Program, participating in the Innovation Trek by spending a long weekend in New York City where they tour innovative start-up companies and cultural

institutions, network with local innovators, entrepreneurs, and U-M alumni, and present their own ideas to these experts. Aspiring UMSI entrepreneurs are invited to take part in the South by Southwest (SXSW) Accelerator pitch competition. In 2015, three UMSI teams won first-, second-, and third-place SXSW awards for start-up ideas involving rock goggles, self-esteem, and smart spaces, respectively.

To date, almost 20% of UMSI students have worked on a PLSDIP. A wide range of entrepreneurial-based venues enable students to pursue their creative instincts, ranging from enrollment in Entrepreneurship in the Information Industry (663), the School's formal course in entrepreneurship, to less formal alternatives such as periodic workshops, one-on-one consultation with program directors, and/or peer mentoring. Regardless of venue, students are encouraged to engage in an iterative process that involves discovery, ideation, validation, persuasion, adaptation, and much more in the course of giving birth to and nurturing their application. A panel of entrepreneurs and venture capitalists is available to advise them at critical junctures. Table II.5 names and describes a handful of PLSDIPs; it also tells what students are doing beyond the prototype phase.

Table II.5. PLSDIPs

PLSDIP Name	Description	Next Steps
The Broke App	A financial literacy application to help millennials better manage their money, put their spending into context, and nudge them into making small behavioral changes to improve their financial health.	Adding a Chief Financial Officer and Chief Technical Officer so the app's developers can work on branding, product, and customer acquisition
Storyfile	A mobile learning portfolio for graduate and undergraduate students in which they save multimedia stories of their accomplishments to share with potential employers.	None
Aether	A mobile application that helps people with ideas for potential companies to find advisers and co-founders.	Talking to investors and launching beta tests
LivWel	A community engagement platform that helps people access and connect with health and wellness resources around them. Initially LivWel targets people living with or at risk for HIV/AIDS.	Complete a minimum viable product and demonstrate to HIV groups for their feedback

Michigan Makers

MSI students volunteer as maker mentors to middle school students at local schools through their service in Michigan Makers, an afterschool program where young people tinker and create with technology while learning how to work in groups and engage in peer mentoring. Everyone benefits: middle school student makers and MSI students who gain real-world experience working one-on-one with youngsters in the process of innovation and creation with maker technology. Initially supported with grants from the UMSI's Founders Fund and U-M Provost's Office, Michigan Makers now has funds from the Institute of Museum and Library Services to expand beyond the Ann Arbor area to rural high-poverty areas in Michigan in the years ahead. Mentors also host makerfests, inviting all sorts of makers to come together and teach other makers the ropes of their craft so that they can pass on what they learn to their mentees.

UMSI Service Day

The entire UMSI community—students, staff, faculty, and administrators—is invited to participate in UMSI Service Day held on the Saturday prior to the Martin Luther King, Jr. holiday. Examples of organizations that host UMSI community members are:

- *Lamaze Family Center. Supporting families from pregnancy to preschool*
- *Friends in Deed. Filling in the cracks of service offered by the other organizations and non-profits in the community*
- *Matthaei Botanical Gardens. Supporting the study and enjoyment of nature indoors and out*
- *WCBN-FM. Providing a venue for U-M students to run a free-form radio station*
- *826Michigan. Supporting afterschool students aged 6 to 18 with their creative and expository writing skills and helping teachers inspire their students to write*

In-Class

For MSI students, engaged learning extends into the classroom where faculty seek to stimulate students with projects that are not only unique, challenging, and relevant, but challenge them to find solutions to real-world problems that organizations are grappling with, and in the course of helping them, reinforce knowledge learned and skills demonstrated in class. Table II.6 details several courses and the variety of projects faculty charge students with.

Table II.6. Courses Demonstrating a Variety of In-Class Engaged Learning Experiences

Course	Projects
Climate Change Informatics (614)	MSI students partner with students from Climate and Space Sciences to engage with real-world clients such as Tampa Bay Water, Centers for Disease Control, and the University of Michigan Climate Center on issues of adaptation to climate change. Together with the clients, students develop projects such as tools to improve data accessibility and/or create a better understanding of the benefits and disadvantages of different datasets, such as downscaled climate data for particular regions. Clients monitor projects and suggest improvements. If appropriate, students turn over their projects to clients for further development at the end of the course.
Content Management Systems (631)	Students build websites mostly for non-profit clients. About 60% of the sites are still in use a year later. Clients appreciate the results, and students like working with a real client and being able to take risks without getting fired.
Appraisal of Archives (632)	Because of the weak research base and few methods for evaluating the feasibility and effectiveness of different appraisal theories and methods, this course places considerable emphasis on the outcomes of appraisal theories and methods and on the implementation of appraisal recommendations and decisions.
Information Literacy for Teaching and Learning (641)	For their final reflection piece on their teaching practicum experience, students contributed essays that the instructor compiled into the ebook entitled Information Literacy in the Wild, making it freely accessible to anyone on the web, and garnering almost 1,800 downloads since its 2011 release.

Course	Projects
Digitization of Cultural Heritage Materials (675)	A partnership of the Bentley Historical Library and the U-M Library's Special Collections Library has formed a conduit to provide students with real collections such as the correspondence of U-M President James B. Angell, historical restaurant menus, and travel postcards, so that they can apply digitizing and cataloging best practices with really significant materials in a working lab setting.

Engaged learning activities align with the School's mission and form a basis for a key aspiration of the Diversity Strategic Plan: offering an "opportunity for every student to participate in at least one learning experience with an underserved community" (see also standard II.2.4).

II.1d The curriculum provides...for the study of theory, principles, practice, and legal and ethical issues and values necessary for the provision of service in libraries and information agencies and in other contexts.

The discussion of theory, principles, practice, legal and ethical issues, and values are substantial components of MSI courses. No single course addresses all five in a comprehensive way but many courses address one or more such elements. Descriptions and syllabi for the courses cited in this standard are given in appendix II.3 and appendix II.4, respectively.

Theory

MSI courses cover theory as the focal point around which all content coalesces and others enlist theory as a ground to facilitate students' overall understanding or as springboard to related and allied topics. Table II.7 lists all MSI courses that address theory followed by courses that are exemplary in their coverage of theory.

Table II.7. MSI Courses Addressing Theory

All MSI Courses Addressing Theory
500, 512, 520, 523, 529, 530, 531, 534, 541, 548, 549, 551, 552, 554, 561, 562, 563, 582, 588, 606, 608, 614, 616, 629, 632, 637, 641, 643, 646, 649, 650, 657, 658, 675, 686, 689, 690, 694
Exemplary courses and descriptions
Information and Control (523) surveys relevant theories from sociology, anthropology, economics, mathematics, and management to examine issues of order, power, control and systems in the social realm, and theories related to digital signal processing, cybernetics, and viable systems in the sciences of the artificial. Particularly important is enlightenment theory, and students examine it with respect to social power and the notion of separation or balance of power in building sustainable mechanisms of self-government.
Online Communities (529) covers the important concepts, terms, and theories that illuminate how people use online communities. It also connects social science theories on individual and group behavior from psychology with the goals of online community managers and with the alternative social and technical design alternatives that are available to them.
Theories of Social Influence (534) surveys the major theories of social influence from the fields of psychology and economics to enable students to understand why and under what conditions an individual's thoughts and actions are influenced by those around them so that they can put this knowledge to work in system design.

Exemplary courses and descriptions
To demonstrate the roles technology plays in supporting different kinds of learning and learners, *Transformative Learning and Teaching with Technology (549)* covers core learning and core motivational theories and how they manifest in instructional designs and shape engagement, respectively.
Students in *Behavior and Experience of Information Users (551)* study various information seeking theories and imagine themselves being in the shoes of theorists and having to introduce their theories for the first time to an interested but diverse audience. They are encouraged to use metaphors and analogies to explain a theory and must include inquiry process, motivation, contributions, implications, and the theory's targeted audience in their introduction.
Through a series of in-class case studies, students in *Consumer Health Informatics (554)* learn a health-related problems identification process, then study several major health informatics theories—theory of planned behavior/integrated behavioral model, socio-cognitive theory, self-regulation theory, goal-setting theory, and game design theory—to determine how those problems can be addressed behaviorally. Students learn to translate psychosocial constructs contained in these theories into specific behavior change techniques (BCTs) included in a published taxonomy of 93 BCTs. They brainstorm methods of transforming these BCTs into technology features and how to choose the best features for a given user group.
Fundamentals of Human Behavior (588) covers cognitive and social psychological theories so that the applications and artifacts students design and organize are in sync with or intended to change human behavior.
In *Information Visualization (649),* students learn about visualization and develop the skills necessary to solve visualization problems. Design decisions are based on underlying theories of perception, cognitive science, and psychology. Students learn the underlying theoretical frameworks and how to apply them to their own design work.

Principles

Principles are fundamental norms, rules, or values that help people understand phenomena and gauge how to respond to them. Give students a set of principles for design, management, electronic record keeping, or some other information-intensive domain, and they are likely to become more efficient at making skillful decisions. Thus, principles are a staple within the MSI curriculum. Few courses skirt them entirely. Table II.8 lists MSI courses that enlist principles in a substantial way.

Table II.8. MSI Courses Addressing Principles

All MSI Courses Addressing Principles
500, 501, 519, 520, 523, 525, 528, 538, 539, 543, 544, 548, 549, 554, 561, 570, 580, 581, 612, 619, 622, 623, 624, 625, 627, 629, 640, 643, 647, 650, 651, 658, 666, 671, 678, 690
Exemplary courses and descriptions
Visual design principles, gestalt principles, and web design principles are essential to Graphic Design (520), enabling students to develop their aesthetic sensibilities in the course of learning how to communicate visually.
Managing Organizational Information Assets (528) presents basic principles, functions, and processes of a records management system including generally accepted record keeping (GAR) principles: accountability, transparency, integrity, protection, compliance, availability, retention, disposition.
Featured in Managing the Information Technology Organization (627) are strategic planning principles for managing the information technology enterprise including the application of human resources management principles to organizational and staffing issues.
Principles are key elements to performing cataloging and metadata creation. Examples of principles covered in Organization of Information (666) are specificity, specific and direct entry, representation, mnemonics, synthesis, enumeration, pre- and post-coordination, uniform and unique heading, and best interest of the user.

Exemplary courses and descriptions
Principles are a key part of understanding how many websites, social computing systems, and social media applications work. Social Interaction Experience (689) teaches students how to observe and examine norm systems, reward and incentive structures, group and organizational structures, power and informal power, information use and transmission in social settings, and practices. Also discussed is how these principles change in different cultural settings.

Practice

A hallmark of the MSI Program is its emphasis on hands-on practical experience. Practice imbues almost every element of the MSI Program, putting students into real-world environments where they experience what it is like to be a professional, use professional tools, confront the same problems and decision-making situations that professionals do, explore data generated by actual systems and system users, and much more. Table II.9 lists examples of MSI courses where practice is prominent and concludes with brief descriptions of several classes that are exemplary with respect to practice.

Table II.9. Practice in MSI Courses

Practice in MSI Courses
501, 502, 514, 520, 523, 525, 528, 529, 538, 539, 543, 544, 548, 561, 570, 581, 582, 601, 606, 608, 612, 618, 620, 622, 623, 629, 631, 632, 634, 635, 636, 639, 641, 643, 647, 649, 650, 651, 655, 658, 661, 663, 664, 665, 666, 671, 675, 689, 690, 691, 694
Exemplary courses and descriptions
In Contextual Inquiry and Consulting Foundations (501) students form interdisciplinary work groups, investigate information use in specific real-world contexts with clients, and conduct field research to inform the design of a workflow, app, product or program. Along the way, students gain real-world experience, collaborating with colleagues, managing project timelines, balancing individual workloads, shouldering responsibilities, conducting interviews, synthesizing collected data, fostering strong client relationships, and presenting their recommendations to both clients and interested stakeholders.
In Collection Development and Management (620) students collaborate in groups, choosing a library, learning everything they can about it including its users, collections, and physical plant, writing reviews for materials their chosen library would collect, profiling a collection or sub-collection for weeding or enhancement, formulating a new or editing the library's existing selection policy, hearing directly from practitioners from a wide range of libraries about collection development, and reporting back in a formal report that includes a synthesis of their investigations.
In Needs Assessment and Usability Evaluation (622) students learn a method for evaluating a software product's usability and apply the method to an actual product, evaluating its usability and formalizing their findings in written and oral presentations.
In the course of learning about the reference interview, students in Information Resources and Services (647) conduct a real interview with a user and reflect on that experience. They also answer real-life reference questions gathered from practicing librarians. They create an online research guide on a specific topic and for a specific user group through a process of iterative design and feedback from both their instructors and classmates and publish their finished guide online. Exemplary examples are aimed at elementary students researching Michigan (http://readsearch.weebly.com/) and adults learning how to cook (http://culinarypublicationsguide.weebly.com/).
Web Archiving (639) not only exposes students to existing and emerging tools for capturing web content, they use professional tools to create web archive collections. At Archive-It are examples of their collections such as "10 Years on Mars," "20th Century Minimalist Music," and "Legalization of Marijuana in Colorado."

Exemplary courses and descriptions
The NEH-funded research project "Preservation and Access Virtual Archives Laboratory" provided the resources for building a virtual laboratory stocked with digital access and preservation tools that master's-level students in the ARM and PI specializations use in their coursework on a regular basis.

Legal and Ethical Issues and Values

UMSI faculty recognize that setting high academic expectations, engaging in cutting-edge scholarship, and delivering the highest quality professional education are grounded in a commitment to the ethics and values of the information professions and an understanding of the legal issues that support the dissemination of ideas and expression in the information age. Ultimately, MSI students are prepared to assume leadership positions in which they manage people and wield information and technology responsibly, conscientiously, and fairly in the service of building a better world. Thus, ethics and values figure prominently in our School's objectives where we promote a user-centered approach to information and reflect the knowledge, values, ethics, and principles that derive from that approach. Legal and ethical issues and values are significant course content in the MSI courses Table II.10 lists.

Table II.10. MSI Courses that Address Legal and Ethical Issues and Values

Legal and Ethical Issues and Values in MSI Courses
500, 501, 512, 519, 523, 528, 529, 530, 538, 541, 552, 580, 581, 606, 619, 620, 623, 631, 632, 634, 637, 639, 643, 647, 649, 651, 655, 678, 691
Exemplary courses and descriptions
In *Information in Social Systems* (500), students gain familiarity with the concept of value-sensitive design and value identification in the design process through case studies of designing a system for social change. For the group term project, each student is asked to play the role of being a designer, a developer, or a user of a particular information system, and group members identify the value conflicts of different stakeholders and characterize ethical issues in the system analysis collaboratively.
Intellectual Property and Information Law (519) immerses students in legal and ethical issues. For example, an in-class assignment involves "terms of use" statements from companies like LinkedIn, Amazon, and Facebook. Students read them critically in small groups, then discuss them together. Startled at the reach of the agreements, some students respond in a very personal way by closing social media accounts. Underlying their actions is this student's rhetorical statement, "Is this the price we pay for participation?" Law and ethics shape the decisions that our students make today, and they need to develop competence in these areas so they can communicate and share their knowledge with library users.
In *Understanding Records and Archives: Principles and Practices* (580), students gain familiarity with laws, regulations, and policies that impact the creation, retention, access, ownership, security, and integrity of records and archives. They learn how to find laws, regulations, and policies that may constrain their choice of action or require action of some sort on their part. Ethics are presented as a form of decision-making where professionals use analytical skills and information to make reasoned decisions in concert with other professionals.
In *Preservation Administration* (581), students learn basics of copyright law from the perspective of impact on preservation copying and making digitized materials available on the Internet. One main focus is on Section 108 provisions for libraries, but students are also introduced to the concepts of fair use, public domain, licenses, open access, and orphan works. Students look at copyright legal distinctions according to publication status (published, not published), format (paper/image/ audio/moving image/digital), and context (library/archive/museum and public/private).

Exemplary courses and descriptions
Personal Informatics Design (606) requires students to confront the ethical challenges inherent in personal data collection for the design of personal informatics applications including potential privacy concerns and risks to end users.
Collection Development and Management (620) explores the library profession's code of ethics and diversity statements along with cherished values such as privacy, intellectual freedom, and the rights to read and learn. In-class discussions encourage students to examine personal values with professional values and reflect on the impact these have on the resources they choose, the programming they feature, and the services the library provides, and how to respond to criticism and challenges from members of the community.
Preserving Sound and Motion (678) is structured around the ethics of the digital transformation from analog to digital, focusing especially on the implications for the end product of the decisions that digital archivists and librarians make about the quality characteristics of the digital transformation and various digital enhancement and editing techniques that affect the final product. Explicit attention is given to the challenges for access due to the oppressive intellectual property regimes that govern sound recordings and audiovisual materials generally.

II.1e The curriculum is revised regularly to keep it current.

The curriculum is revised regularly to keep it current. The Curriculum Committee (up to spring 2012) and its successor (since fall 2012), the MSI Program Committee, have been charged with oversight of the MSI Program's curriculum. The MSI Program Committee meets on a regular basis, at least once a month and as many as four times a month, to discuss new courses, additions and changes to existing courses and specializations, policy matters, student recruitment, application and scholarship review, and other matters of importance to the MSI Program. On occasion, the MSI Program Committee splits into subcommittees to streamline its research and analysis on matters of interest, followed by reporting back subcommittee findings and/or recommendations to the full MSI Program Committee that takes the matter to the next step.

Annually in September, the AADA issues a "Committee Charge" to the MSI Program Committee that lists goals and charge for the academic year. In addition to its regular curriculum business, the MSI Program Committee responds to the charge, detailing its progress in meeting notes from September through May.

Some matters, such as course additions and changes involve only the MSI Program Committee and requesting faculty members and/or specialization chairs. Other matters, such as new policies, entirely new specializations, or major curriculum reform are discussed and approved by the faculty during faculty meetings and/or retreats.

On occasion, the LT appoints a task force or study team separate from the MSI Program Committee to focus on an important matter. This is exactly what happened in fall 2014 when the deans charged the MSI Curriculum Revision Task Force with finishing the task of curriculum reform that the MSI Program Committee and its Curriculum Committee predecessor had started. Upon the completion of the Task Force's curriculum reform work and faculty approval of its MSI Curriculum Reform Proposal (see appendix II.2), the MSI Curriculum Revision Task Force was dismissed, and the implementation of the future curriculum was put back into the hands of the MSI Program Committee in the ADAA's annual charge to the MSI Program Committee at the beginning of the 2015-2016 academic year.

This discussion of curriculum revision and currency is continued in this report's responses to standards II.5, II.6, and II.7 on continual evaluation of the curriculum, documented evidence of decision-making processes, and curriculum evaluation, respectively.

II.2

The curriculum is concerned with information resources and the services and technologies to facilitate their management and use. Within this overarching concept, the curriculum of library and information studies encompasses information and knowledge creation, communication, identification, selection, acquisition, organization and description, storage and retrieval, preservation and curation, analysis, interpretation, evaluation, synthesis, dissemination, use and users, and management of human and information resources.

(Responses to this standard are split into separate discussions II.2a and II.2b below.)

II.2a

The curriculum is concerned with information resources and the services and technologies to facilitate their management and use.

Our School's very name—School of Information—drives home the message that the curriculum, in every course and in its entirety, is concerned with information resources and that includes the services and technologies to facilitate their management and use and the people needing information. Underlying the MSI Mission Statement is a direct emphasis on the application of technology to information resources: "…to prepare students to understand the human, ethical, and technological dynamics of our constantly evolving information society." Additionally, this statement emphasizes our dedication to training the future generation of information professionals "to lead in designing and building new user-centered solutions to society's most challenging information needs." Our undivided attention to information resources, services, and technologies is self-evident in the names of the current MSI Program's specializations:

- *Archives and Records Management*
- *Human Computer Interaction*
- *Information Analysis and Retrieval*
- *Information Economics for Management*
- *Library and Information Science*
- *Preservation of Information*
- *Social Computing*

So too do our future curriculum's pilot mastery courses demonstrate a commitment to information resources, services, and technology:

- Big Data Analytics
- Developing Social Computing
- Digital Curation

- Digital Repository Architecture and Implementation
- Instructional Practice in Information
- Mastery Interaction Design: Civic Technology
- Social User Experience

In short, our MSI Program is a rich mixture of instruction, research, and engaged learning that stimulates students to generate innovative ideas, experiment with novel approaches, and discover the potential of new technologies in the course of solving vexing problems associated with the management and use of information resources.

II.2b Within this overarching concept, the curriculum of library and information studies encompasses information and knowledge creation, communication, identification, selection, acquisition, organization and description, storage and retrieval, preservation and curation, analysis, interpretation, evaluation, synthesis, dissemination, use and users, and management of human and information resources.

This standard traces the lifecycle of information beginning with its creation, including its organization, retrieval, use, long-term preservation, and ending with its management, and, in some cases, disposition. While few courses cover the information lifecycle from beginning to end, every course addresses one or more lifecycle elements. Lifecycle elements that are featured prominently in MSI courses are designated in Table II.11.

While some creation courses are obvious, such as those in which students formulate metadata or create preservation-quality digital images, others are less obvious, such as a design course in which students design a personal informatics application that collects and displays data about users to promote a change in their behavior or a course on archives research that investigates the roles that documents, artifacts, and archival institutions play in capturing, conveying, and distorting collective memory. Courses classed in the human communication and behavior element range from survey courses on human behavior and social influence theories to specialized courses that examine this element from the perspective of information retrieval, health informatics, and system usability. Students studying artifacts and collections, regardless of their format and genre, address several elements, particularly identification, selection, acquisition, description, organization, storage, and retrieval. The preservation and curation elements describe one specialization in the current curriculum and one mastery course in the future curriculum, respectively. Courses classed in the management element range from management courses that fit the current curriculum's management distribution, such as 523, 530, and 534 to courses that focus on specific information-intensive environments or organizational operations within such environments.

Table II.11. MSI's Curriculum's Coverage of Information-Lifecycle Elements*

Information Lifecycle Element	Course No.	Course Name
Information and knowledge creation	500	*Information in Social Systems*
	570	*Semantics-Based Knowledge Descriptions and Access*
	606	*Personal Informatics*
	629	*Access Systems for Archival Materials*
	636	*Makerspaces*
	637	*Research Seminar on Archives, Evidence, and Collective Memory*
	639	*Web Archiving*
	649	*Information Visualization*
	666	*Organization of Information*
	671	*Data Mining*
	675	*Digitization for Preservation*
	686	*User-Generated Content*
Human communication and behavior	500	*Information in Social Systems*
	531	*Human Interaction in Information Retrieval*
	534	*Theories of Social Influence*
	551	*Behavior and Experience of Information Users*
	554	*Consumer Health Informatics*
	588	*Fundamentals of Human Behavior*
	626	*Needs Assessment and Usability Evaluation*
	691	*Global Information Engagement Program*
Information identification, selection, and acquisition	528	*Managing Organizational Information Assets*
	580	*Understanding Records and Archives*
	620	*Collection Development and Management*
	624	*Media for Children and Young Adults*
	631	*Content Management Systems*
	632	*Appraisal of Archives*
	639	*Web Archiving*
	640	*Digital Libraries and Archives*
	655	*Records and Accountability in Modern Society*
Organization and description	528	*Managing Organizational Information Assets*
	529	*Online Communities*
	570	*Semantics-Based Knowledge Descriptions and Access*
	629	*Access Systems for Archival Materials*
	639	*Web Archiving*
	640	*Digital Libraries and Archives*
	658	*Information Architecture*
	665	*Online Databases and Searching*
	666	*Organization of Information*
	675	*Digitization for Preservation*

Information Lifecycle Element	Course No.	Course Name
Storage and retrieval	531	*Human Interaction in Information Retrieval*
	551	*Behavior and Experience of Information Users*
	561	*Natural Language Processing*
	570	*Semantics-Based Knowledge Descriptions and Access*
	629	*Access Systems for Archival Materials*
	639	*Web Archiving*
	640	*Digital Libraries and Archives*
	647	*Information Resources and Services*
	650	*Information Retrieval*
	665	*Online Databases and Searching*
	666	*Organization of Information*
	671	*Data Mining*
Preservation and curation	528	Managing Organizational Information Assets
	580	Understanding Records and Archives
	581	Preservation Administration
	601	Data Manipulation
	603	Economics of Sustainable Digital Information
	618	Exploratory Data Analysis
	625	Digital Preservation
	639	Web Archiving
	640	Digital Libraries and Archives
	651	Physical Treatment Processes for Preservation Administrators
	675	Digitization for Preservation
	678	Preserving Sound and Motion
Analysis, interpretation, evaluation, synthesis, and dissemination of information	All	All MSI courses
Users	All	All MSI courses
Management of human and information resources	523	Information and Control
	530	Principals in Management
	562	Microeconomics for Information Professionals
	580	Understanding Records and Archives
	581	Preservation Administration
	620	Collection Development and Management
	627	Managing the Information Technology Organization
	655	Records and Accountability in Modern Society
	661	Managing Health Informatics
	663	Entrepreneurship in the Information Industry

*Descriptions and syllabi for the courses cited in this standard are given in appendices II.3 and II.4, respectively.

Missing from Table II.11 is a list of all the courses addressing the analysis, dissemination, evaluation, interpretation, and synthesis elements because these elements are pervasive across the MSI curriculum. Almost every course addresses one or more such aspects in a substantial way. Enumerating them in Table II.11 would make it exceedingly long and tedious so here are how these elements are incorporated into these categories of courses:

- *The analysis of information is key in courses in which aspiring retrieval-system designers index texts, media, and metadata so that systems respond to queries with retrievals that have promise for resolving people's information needs.*
- *The dissemination of information is key in courses in which aspiring information specialists are dedicated to the field's core values such as access, democracy, diversity, education, intellectual freedom, and social responsibility.*
- *The evaluation of information is key in courses in which aspiring librarians teach users how to find information that is not only relevant but trustworthy, reliable, current, and authoritative.*
- *The interpretation of information is key in courses in which aspiring user-experience professionals learn how to test online systems so they are easy to use and respond to user inquiries in predictable ways and with information that users can put to work to answer their questions, solve their problems, and help them make decisions.*
- *The synthesis of information is key in courses in which aspiring data visualization specialists learn how to process information in ways that produce visual representations of data to gain insight into a phenomenon, reveal unexpected relationships, or identify new patterns.*

A list of all the courses addressing the use and users element is also missing from Table II.11, because of the pervasiveness of this element across the MSI curriculum. Almost every course addresses use and users in a substantial way. The curriculum's focus on this element is best expressed in the School's mission statement that begins with the statement "We share a passion for the fundamental intertwining of people, information, and technology" and continues with "We share a defining idea: to understand and improve interactions between people, information, and technology, we must combine scientific expertise in all three." The School's banner depicts the Borromean rings—three interlocking circles, one representing people, the second representing information, and the third representing technology—that are intertwined in such a way that removing one ring results in two unlinked rings. The message here is that in everything we do, our focus is simultaneously on people, information, and technology. For example, our study of collections starts with a needs assessment, gaining a complete understanding of user needs, and this is true of our study of systems, whether we are building them, ensuring their usability, or analyzing the trail of system usage people leave behind.

Standards II.2.1 to II.2.6

This discussion of the MSI Program's fulfillment of standards II.2.1 to II.2.6 is divided into three sections: (1) required components of the current MSI curriculum fulfilling Standards II.2.1 to II.2.6, (2) required components of the future MSI curriculum fulfilling Standards II.2.1 to II.2.6, and (3) MSI elective courses fulfilling standards II.2.1 to II.2.6.

Required Components of the Current MSI Curriculum Fulfilling Standards II.2.1 to II.2.6

The MSI Program's current curriculum has four components required of all students in the program: (1) three required courses for all MSI students (i.e., 500, 501, and 502), (2) required course distributions in management and research methods, (3) practical engagement, and (4) cognate courses. In Table II.12's left and center columns are standards 11.2.1 to 11.2.6 and the current curriculum components that fulfill them, respectively.

Table II.12. Curriculum Requirements that Fulfill the Learning Objectives of Standards II.2.1 and II.2.6

II.2.X Standard	Requirements in the Current Curriculum	Requirements in the Future Curriculum
II.2.1 Fosters development of library and information professionals who will assume a leadership role in providing services and collections appropriate for the communities that are served.	500 501 Management distribution* Practical Engagement Program (PEP)	Mastery course PEP Mastery course's prerequisite courses and course sequences
II.2.2 Emphasizes an evolving body of knowledge that reflects the findings of basic and applied research from relevant fields	500 Research distribution+ Specialization required courses^	Mastery course Mastery course's prerequisite courses and course sequences
II.2.3 Integrates technology and the theories that underpin its design, application, and use	500 502	Mastery course Mastery course's prerequisite courses and course sequences 506, 507
II.2.4 Responds to the needs of a diverse and global society, including the needs of underserved groups	500 501 PEP Cognate course(s)	Mastery course Mastery course's prerequisite courses and course sequences PEP Cognate course(s)
II.2.5 Provides direction for future development of a rapidly changing field	500 Management distribution* PEP Cognate course(s)	Mastery course Mastery course's prerequisite courses and course sequences PEP Cognate course(s)
II.2.6 Promotes commitment to continuous professional development and lifelong learning, including the skills and competencies that are needed for the practitioner of the future.	500 501 502 Management distribution* Research distribution+ PEP Cognate course(s)	Mastery course PEP Mastery course's prerequisite courses and course sequences Cognate course(s)

*Management distribution courses are the student's choice of 523, 530, 534, 617, 627, 661, and 663.

+Research distribution courses are the student's choice of 525, 544, 563, 601, 618, 622, and 623.

^See appendix II.5 for a list of required courses per specialization.

The required course Information in Social Systems (500) addresses all six standards. Because most current MSI students take this course in their first semester of the program, they take their first steps toward becoming the well-rounded information professional that this standard prepares them for. The course description reveals the survey nature of the course, aimed at exposing students to a wide variety of concepts and ideas drawn from an interdisciplinary array of disciplines that make up the information profession:

It provides an opportunity to build a common vocabulary and set of shared concepts among students across varied MSI career paths, as well as to develop an appreciation for the traditions, skills and insights in the intellectual traditions informing the School's perspective. The course introduces students to a wide range of core theoretical and pragmatic concepts that we believe will anchor you to understand the complexity of information in social systems and the hard choices that information professionals face whether they are designing or implementing systems, selecting resources for access or preservation, designing interfaces to collections, establishing access policies and pricing mechanisms, or analyzing organizational data assets for better decision-making.

In Contextual Inquiry and Consulting Foundations (501), students form interdisciplinary work groups to identify a problem space, design a project, and manage the team and project to reach a potential solution regarding information use in specific real-world contexts. They must conduct field research and interact with the client organization to inform the design of a workflow, app, product, or program. The course is fundamental to what students do in MSI courses, co-curricular activities, and engaged learning opportunities, so it is essential that students enroll in this course during their first year of the program, and most do. MSI graduates acknowledge the usefulness of SI 501 especially for preparing them for comparable experiences in subsequent courses and the jobs they take upon graduation.

"501 was one of the most memorable and helpful classes I took at UMSI. It is not only an introduction to an extremely useful method of conducting research, it also gave me an opportunity to work with a diverse group of classmates to solve a client's problem in a real-world setting." (Amber Lovett)

"I found 501 to be a great opportunity to work on a project with students from other specializations and play off one another's differing strengths. It was also exciting to work on solving a problem for an actual client, and make recommendations that helped the client's work: this is an example of project management and collaboration that I regularly point to on my resume and in cover letters as I search for jobs this semester. It certainly helped me hone my ability to work with others, and my ability to work for a client. I also find myself using the contextual inquiry interviewing skills we learned in 501 in other professional interactions–such as when conducting informational interviews with librarians, or when interviewing librarians for assignments." (Tierney Steelberg)

"501's contextual inquiry method was very useful in helping our group to uncover exactly what our clients needed to solve their information problem. It was more useful than just simply asking the clients what it was that they thought they needed. Applying it, our group was able to fully understand our clients, the environment they were working in, and their information needs in ways that the clients themselves may never have thought to articulate in a traditional interview situation. Ultimately, I was sure convinced that this unique kind of observation led to better, more relevant, solutions for our clients." (Tamara Sofia-Cerilli)

"501 gave me experience with collaboration. I worked in a diverse group that contained different work styles and personalities. From engaging with my group, I learned how to be productive and accomplish tasks by identifying and leveraging each member's strengths. I will be able to use this skill in projects and committee work as a librarian." (Martha Stuit)

"501's contextual inquiry is an incredibly useful practice—a way of seeing—that can be utilized across information disciplines. I learned how to remove myself from a situation in order to see the larger picture and how to collect and analyze information that will help to both identify the real problem and develop ways to address that problem. Contextual inquiry gives students a kind of hyper-awareness—we can spot communication breakdowns more easily than before, and we become better listeners, observing nuances like body language and tone. I will be a better librarian, manager, and mentor from having participated in this course." (Amy Eiben)

Organizations that function as 501 clients give instructors positive feedback on student projects, describing the usefulness of project findings and how they intend to use them at the conclusion of the project.

"The 501 class was quite useful in a number of ways: (1) the recommendations themselves were valuable and are being implemented to various degrees, (2) the process of having the students work on the project led our organization to spend more time on the project, thus creating forward momentum where we may have not have had any, (3) the students' perspectives were fresh and offered a great 'outsiders view' on our needs, and (4) the work and process [put]…our staff on the same page as to our needs and how to move forward." (Huron River Watershed Council)

"[This was a] very valuable…project for which we did not have staff time and expertise to begin, so this project was a nice opportunity to get started and to generate some momentum in the organization to make progress. I would have liked to hear mid-semester about developing an internship because now it seems too late to get someone in place to implement immediately. We will be considering a summer intern though." (Skillman Foundation)

"[SI 501 students completed] a worthwhile project that dovetails with our internal communications audit in University Housing. Exploring information flow and effectiveness (or not) to students at the building level is extremely important in our endeavors to improve communication about Housing programs and processes to residents. This study provided valuable insights that confirmed some of our observations, but also yielded new thoughts that could help us improve the timeliness, order, and value of Housing information in the residence halls." (University Housing, University of Michigan)

"Just wanted to let you know your 501 students delivered their contextual inquiry findings to Xoran's leadership. The team did a fabulous, concise presentation and fielded questions. I enjoyed working with them and benefiting from their self-starter attitudes (saved me a ton of time and instilled confidence). Great group! I hope we continue to work with U-M in the future on similar programs." (Xoran Technologies)

"[We are currently] updating our volunteer department. We have many new systems put in place to help make our program as seamless as possible. It was a perfect correlation to have the SI student help analyze our program, since we were in the middle of doing the same. It was very valuable to have an outside source give feedback not only from the perspective of an analyzer but also as a volunteer." (Food Gatherers)

Students gain a foothold in technology through their coursework in the required course Networked Computing: Storage, Communication, and Processing (502). This is a survey course covering a broad range of technology topics at a high level and is geared toward incoming students who have no prior technical skills other than general computer use. It introduces students to computer architecture, programming, software development, internet technologies, web technologies, service-oriented architecture, database modeling, web search, and system security. Students who demonstrate technical proficiency can substitute an advanced technology-based course for 502. Generally, 502 fulfills standards II.2.3 and II.2.6.

The MSI Program's current curriculum has two distribution requirements, one that requires them to choose 3 credits of management coursework from a list of seven course options and a second that requires them to choose 3 credits of research methods coursework from a different list of seven courses. The former is relevant to standards II.2.1, II.2.5, and II.2.6 and the latter to standards II.2.2 and II.2.6 in Table II.12.

The Practical Engagement Program (PEP) is an integral part of the MSI Program requiring all students to amass six practical engagement credits (PEP points) as a requirement for graduation. PEP integrates the application of knowledge and skills to specific problems outside the classroom, and both enables and requires students to combine what they have learned in the classroom with what they observe and experience in the "real world." Because PEP requires professional-level work and close mentoring by in-field experts, it fosters skill development and ability in students to work assertively and to gain a level of confidence that they can take back into the classroom for further development, and ultimately, into their first professional job. Students must also reflect on PEP as a learning activity. They build a portfolio of their work and answer several prompts over the course of the PEP experience that help them to become reflective practitioners and take the initiative in engaging in certain activities during the experience, such as shadowing people or conducting informational interviews. Practical engagement figures prominently into fulfilling standard II.2.1 in Table II.12, and it contributes to fulfilling standards II.2.4, II.2.5, and II.2.6.

All MSI students are required to take a minimum of 3 and a maximum of 6 credits of cognate courses. What specific standards their chosen cognate course(s) address depends on the particular course(s) they take, but generally speaking, cognate courses address standards II.2.4, II.2.5, and II.2.6, stretching beyond the confines of the information-orientation that underlies MSI courses and giving students a foothold into the future that they will shape as professionals in their chosen fields.

Required Components of the Future MSI Curriculum Fulfilling Standards II.2.1 to II.2.6

The MSI Program's future curriculum has six components required of all students in the program: (1) a mastery course, (2) summer internship (practical engagement), (3) advanced courses and course sequences, (4) prerequisite skills courses, (5) an augmented orientation to the MSI Program, and (6) elective courses. In Table II.12's left and right columns are standards II.2.1 to II.2.6 and the future curriculum components that fulfill them, respectively.

Mastery courses govern all requirements. Mastery courses designate prerequisite courses with some of these courses sequentially designated so that students take them in order, achieving depth in a subject as they progress from course to course. Mastery courses also designate prerequisite skills and competencies that students should seek through

elective courses, their PEP internship, not-for-credit information and technology-related service projects, action-based learning events, and entrepreneurial activities. For example, students choosing the mastery course CT pursue in-class and out-of-class venues where they can gain experience and ease speaking to groups and individuals and develop a civic orientation.

Every standard designated in Table II.12 is met in part by the student's chosen mastery course and its prerequisite courses and their course sequences. Especially prerequisite courses that are technology-based are sequenced so that students are able to build on a simple foundation that becomes increasingly more technical and complex. Ultimately, prerequisite courses cut to the chase in terms of preparing students for mastery courses and for professional positions that assume students have achieved a high level of expertise, command, and facility over their chosen domain. Finally, in the future curriculum, practical engagement and cognate courses remain unchanged, the former figuring prominently into fulfilling standard II.2.1 and contributing to fulfilling standards II.2.4, II.2.5, and II.2.6, and the latter contributing to fulfilling standards II.2.4, II.2.5, and II.2.6.

MSI Elective Courses Fulfilling Standards II.2.1 to II.2.6

The remainder of this section provides evidence that the MSI Program's electives fulfill standards II.2.1 to II.2.6. In the current curriculum, some electives function as true electives, that is, courses students choose to fulfill the MSI Program's 48-credit requirement. Other electives function as required courses within a specialization or a specialization's research methods, management, programming, or statistics distribution.

In the future curriculum, all MSI courses are electives. Only when a student chooses a mastery course do some MSI elective courses become prerequisites. This forms the cornerstone of what will be a student's academic plan. Because several mastery courses have the same course prerequisites (e.g., 501, 622, 664), MSI students may be able to sample course prerequisites for several mastery courses during their first semester in the MSI Program; however, they should choose a mastery course and get started on fulfilling its prerequisites no later than their second semester in the MSI Program.

Accompanying each standard II.2.1 to II.2.6 below is a list of elective courses that provides students with relevant learning experiences and outcomes. Under the list are a few exemplary courses that illustrate in more detail the ways in which the MSI curriculum fulfills the components of the standard. Courses featured in this section are electives in the current curriculum. In the future curriculum, the MSI student's choice of mastery course determines whether a course is prerequisite, recommended, or elective. For example, *Online Searching and Databases* (665) may be a prerequisite for the Instructional Practice in Information mastery course and recommended for the Digital Repository Architecture & Implementation mastery course. Neither designated as a prerequisite or recommended for other mastery courses, it becomes an elective for students pursuing other mastery courses. (Descriptions and syllabi for the courses cited in standards II.2.1 to II.2.6 are given in appendices II.3 and II.4, respectively.)

II.2.1 Fosters development of library and information professionals who will assume a leadership role in providing services and collections appropriate for the communities that are served.

Elective courses fulfilling the standard: 501, 519, 523, 530, 538, 549, 580, 581, 582, 620, 622, 649, 663, 624, 641, 643, 649, 663, 694

Exemplary Courses:

In *Intellectual Property and Information Law (519),* students engage in conversation, exchange, and constructive disagreement. They are exposed to primary legal sources to remove the mystique of legal authority and show how the rule of law is a matter of practical engagement. Students should be able to navigate legal questions and recognize legal issues. The instructor's goal is to empower them so that they leave the course knowing that they can shape the law, and that as aspiring leaders, they can recognize and respond to situations that imply legal awareness.

In *Information and Control (523),* students interpret organizational circumstances in light of social control and the role of information in that control. They prepare for leadership by learning skills for following plus how to handle social power when assuming leadership roles.

Principles of Management (530) creates leaders by exposing students to various theories and types of leadership. Students gain knowledge on how to manage interpersonal relationships in both individual and group settings. They learn how to plan, organize, and control the activities of organizations that provide services and collections to specific communities. Finally, they meet, interact, and learn from current leaders in the information fields who visit the class as guest speakers.

In *Understanding Records & Archives (580),* students work in groups to respond to this realistic but simulated challenge: a wealthy benefactor will give $30 million to your archive or special collections in response to your proposal of a project that is innovative, contributes to community redevelopment, and is sustainable. Students work in teams to respond to this challenge, learning how to have high aspirations, make sound financial and investment decisions, build on their teammates' ideas, achieve consensus, and pitch their proposal in a convincing way.

In *Information Visualization (649),* instructors randomly assign students to different working groups before every class so students experience the wide range of design roles and develop a perspective on the work habits of other students.

In *Entrepreneurship in the Information Industry (663),* students learn how to be product leaders. They start with an area of passion, learn a methodology for transforming this passion into a prototype, enlist this methodology to build a product prototype, and give presentations to entrepreneurs, intrepreneurs (i.e., employees who generate innovations for their employers rather than create their own small business), and venture capitalists to gain financial support for their products.

II.2.2 Emphasizes an evolving body of knowledge that reflects the findings of basic and applied research from relevant fields.

Elective courses fulfilling the standard: 529, 531, 541, 549, 554, 561, 570, 581, 582, 588, 608, 612, 614, 629, 637, 639, 640, 643, 647, 649, 650, 671, 689

Exemplary Courses:

Online Communities (529) focuses on how social science research can inform the design of interaction spaces that encourage community building and discourage behaviors that are harmful for the community. In doing so, students learn how to connect social science theories with the goals of online community managers and with the alternative social and technical design alternatives available to them.

In *Consumer Health Informatics (554),* students develop design principles for serving marginalized and underserved populations that feature a literature review and synthesis of findings that address the ways in which these groups' specific characteristics may cause them to differ from others in terms of these design-relevant areas: technological constraints, technological trust, what constitutes a usable technology, and what technology features, content, or interactions are considered valuable.

Human Interaction in Information Retrieval (531) not only introduces students to research in relation to search user interfaces, search tasks, search queries, search user experience, interactive information retrieval, and information retrieval evaluation, but it gives them opportunities to discuss and critique empirical user studies in the field of information retrieval, focusing on user experience and human-centric evaluation to assess the quality of search systems.

Research Seminar on Archives, Evidence, & Social Memory (637) delves into the published literature to explore how collective memory is constructed and transferred over time and what roles documents, artifacts, and archival institutions play in capturing, conveying, and distorting collective memory. Students are also charged with a major, original research paper that draws on primary sources to illuminate the nature and construction of collective memory and its relationship to archives.

In *Information Resources and Services (647),* students complete an independent project on innovative service models. They learn about a pressing problem in the field and examine theory, research, and cases published in the professional literature that could help to address these problems. They complete a written paper that outlines the problem and gives others' solutions, then propose their own solutions. They present their ideas as part of a panel in which they are required to engage other students about broader themes present across their individual presentations, for example, in Fall 2015, these themes were (1) services for everyone, (2) cutting-edge collaborations, (3) new documents and technologies, (4) innovative instruction, and (5) new spaces and objects.

Data Mining (671) is a graduate-level seminar course on advanced topics in data mining, providing an overview of recent research topics in the field of data mining and surveying state-of-the-art methods to analyze different genres of information and to hypothesize on their applications to real world problems. For the course project, students choose between building a software system that applies existing data mining techniques to a specific type of data or conducting a research experiment documented in the form of a research paper.

II.2.3 Integrates technology and the theories that underpin its design, application, and use.

Elective courses fulfilling the standard: 514, 529, 531, 534, 538, 551, 561, 570, 606, 608, 612, 650, 664

Exemplary Courses:

Digital Humanities Debates and Techniques (514) presents an overview of the theories and practices of the Digital Humanities, particularly the use of computational methods to explore humanities research questions.

Behavior and Experience of Information Users (551) provides theoretical and practical frameworks for information professionals who design and evaluate information systems and services based on user-centered approaches.

Semantics-Based Knowledge Description and Organization (570) covers the foundations, tools, and application of semantic-based techniques for organizing networked information. Course content mixes theoretical underpinnings with a strong technical component giving students a foundation to deploy semantic technologies in multiple practical contexts.

Personal Informatics (606) may be a studio course in which students design a personal informatics application but it includes the role that theory plays in making various aspects of life quantifiable and in promoting behavior change.

While students become skilled at applying the methods and techniques of pervasive/ubiquitous computing (UbiComp), students taking *Pervasive Interaction Design (612)* must justify and defend their design decisions by grounding in them in the literature of HCI, computer-supported collaborative work (CSCW), UbiComp, and Pervasive Computing.

II.2.4 Responds to the needs of a diverse and global society, including the needs of underserved groups

UMSI's firm commitment to a diverse and global society as well as the needs of underserved groups is manifest in the School's Diversity Committee, established in the 2012-2013 academic year and given charges by the ADAA on a yearly basis with diversity activities and benchmarks pertaining to planning and coordination, composition, capabilities, climate, and contributions activities (see standard I.1.2). In fall 2015, the U-M President charged all U-M schools, colleges, and campus units with a diversity strategic planning process (https://diversity.umich.edu/strategic-plan/). In response, a seven-member team of UMSI faculty, students, and staff drafted a five-year strategic plan bearing diversity goals for individual constituencies and for all constituencies: students, faculty, and staff. These three goals pertain to curriculum specifically and each is accompanied by its constituencies, measures of success, and specific near-term actions:

- *Increase the impact of faculty scholarship on diversity, equity, and inclusion. Measures of success: Faculty annual review scholarly productivity and publication data. Constituencies: Faculty. Near-term actions: Evaluate policies for research incentives, start-up funds, and other research support to take maximum advantage of funding sources that support research with broad impacts, and convey to faculty and students what the rewards are for impactful research.*

- *Create a teaching and learning environment that prepares students for careers in a diverse and global environment. Measures of success: Student outcomes data; Climate survey results indicating fewer experiences of bias and exclusion. Constituencies: Faculty. Near-term actions: Assess diversity and multiculturalism in courses as part of the implementation of the new MSI curriculum.*
- *Amplify the impact of existing educational programs that address diversity, equity, and inclusion. Measures of success: Opportunity for every student to participate in at least one learning experience with an underserved community. Constituencies: All (faculty, students, and staff). Near-term actions: Align individual goals for diversity (in FARs) and staff performance reviews with one or two UMSI broader UMSI diversity goals.*

Of the three goals, the third goal is especially compelling, providing students with opportunities to participate in learning experiences with an underserved community. This report's response to standard II.2.4 describes these opportunities, beginning with a list of MSI elective courses that fulfill this standard and descriptions of course activities that are exemplary with regard to this standard.

Elective courses fulfilling the standard: 519, 523, 529, 530, 538, 549, 552, 554, 581, 614, 620, 622, 636, 637, 643, 689, 691

Exemplary Courses:

Information and Control (523) explores the role of information in the historical evolution of discrimination in race, ethnicity, gender, and other differentiators. In particular, the course addresses how oppressed communities use various forms of expression—music, visual media, and, more recently, Internet-based tools—to push back on oppression. Students do group projects on subjects of their choosing, and present their results to the class, and often, groups choose topics relevant to issues of diversity. For example, students have explored incarceration as the new Jim Crow, exclusionary rules by which people are prohibited from housing or employment, and prejudice involved in proper names that reveal gender, religion, or ethnicity. The course's main contribution to diversity is in exploring the mechanisms of "vulgar" prejudice that has been relatively easy to reduce and "polite" prejudice that has proved difficult to reduce.

In *Principles of Management (530),* students learn how to manage a diverse workforce. They read and discuss cases which present the benefits and challenges associated with diversity and globalization and are exposed to the popular theories and frameworks used to explain the effects of group and organizational diversity. In addition, students learn why cultural differences across geographical boundaries often require Western managers to re-think their approaches to managing their workforce.

Student teams in *Citizen Interaction Design (538)* design and implement products for underserved groups, for example, working with people with disabilities, homeless populations, low SES neighborhoods, and LGBT communities.

Consumer Health Informatics (554) assigns students to multidisciplinary groups where they are charged with formulating design principles for a consumer health technology used by members of an underrepresented group, e.g., seniors/older adults, children, people who are blind/have low vision, lesbian, gay, bisexual and transgendered (LGBT) people, etc. Students conduct literature reviews and synthesize findings that address the ways in which these groups' specific characteristics may cause them to differ from others.

When they present their principles in class, they analyze existing applications according to their principles to test them as evaluation tools. Here (http://inclusivehealthdesign.si.umich.edu/) are examples of students' design principles.

In *Introduction to Interaction Design (582),* students learn the methods and skills involved in designing and prototyping interactive systems. Class assignments consist of design critiques of products and student work by peers, in-class design activities, and weekly milestones that lead to final projects, and all assignments require students to reflect on the social impact of the products they critique and those that they design. Examples of students' assignments are a design critique that explores how regional and cultural differences influence car design and how this has been done inappropriately by car manufacturers in the past; the design of an application to support recently divorced job seekers who are reentering the job market after rearing a child; the design of a podcast system that fosters autism advocacy in Michigan; and the design of a ranking and review system (i.e., similar to Yelp and TripAdvisor) for parents who have children with special needs and who would like to take their children to family-friendly and inclusive restaurants.

Because *Needs Assessment and Usability Evaluation (622)* attracts large numbers of international students, it takes on a global perspective: talking about user experiences in international contexts and evaluating needs across diverse users including those with physical disabilities, mental health challenges, from low income households, and beset with technology access and adoption barriers. Working group composition is mixed, forcing students to synthesize their strengths and overcome individual and group weaknesses to complete a successful client-focused project.

Social Interaction Experience (689) conceptually examined diversity as a subject matter. The course material examined the role of gender and politics in collaborative systems and in work life and included a module on interculturally sensitive design. The course was designed to promote discussion and participation by those who do not always flourish in MSI classes, specifically Asian and Asian-American women, through the use of in-class exercises and group discussions. The course also had a module on culturally sensitive research methods, which also served to highlight issues in class discussions.

Exemplary Programs and Activities:

UMSI sponsors a host of programs and activities that not only exposes students to the needs of a diverse and global society and/or underserved populations but enables them become active players in solving information-related problems that improve people's lives. Several exemplary programs and activities are featured here.

Global Information Engagement Program (GIEP)

The Global Information Engagement Program (GIEP) is an innovative approach to learning that partners carefully selected student teams with non-profit, research, and educational organizations in an international setting. Together, they develop sustainable information management practices that have positive societal impact. Students spend a semester studying and creating plans for the implementation of an identified information challenge that has high social impact value, following up the plans with international travel that situates them in-country to refine their projects and hand them over to their organizational partners. GIEP 2016 partners UMSI students with organizations in South Africa. Here are brief descriptions of GEIP 2015 projects from India:

- *Maternal Health. India has the poorest Maternal-Child Health (MCH) indicators in South Asia, and access to adequate healthcare in rural settings is extremely difficult. In response, the student team partnered with the local health organization, iKure, and created an Android application that community health workers (CHWs) working in rural Indian villages can use to direct questions to medical providers (MPs) and to discuss medical and logistic matters with other CHWs.*
- *Eldercare. The population of the elderly in India is growing fast and so are the challenges faced by them. In response, the student team partnered with Nightingales Medical Trust to build a web portal IndiaElderConnect (http://indiaelderconnect.com) where Indian elders can locate services, find medical information, ask questions, publicize events, and more.*
- *Urban Informatics. In India, real estate prices are not clearly represented to all interested buyers and researchers resulting in information disparities. In response, the team partnered with three Indian non-profit organizations and built a web-based mapping system that allows users to visualize an area's historical property prices to better determine future selling prices.*
- *Skilled Healthcare Workers. Small and medium Indian healthcare centers are facing a challenge in terms of shortage of skilled work force. In response, the team partnered with Sundaram Medical Foundation and Be Well Hospitals to develop and implement a Learning Management System (LMS) for the administration, documentation, tracking, reporting, and delivery of e-learning healthcare skills courses and training programs.*

International Internships

MSI students are encouraged take part in international internships each year as part of their PEP experience. Their work and travels have placed them at the national archives in Uganda, the United Nations working on ICT development activities, and at the Lenovo Group, a Chinese multinational company working on project management. Both UMSI and the U-M provide a range of funding opportunities to support students' international internships with CDO assisting students with the search-and-application process.

Peace Corps Programs

In early 2014, UMSI became the first American iSchool to provide financial support and academic credit to those who have served in the Peace Corps prior to enrolling in its MSI Program. For their Peace Corps service, students receive six credits that fulfills the MSI Program's PEP requirement and financial assistance through The Paul D. Coverdell Fellows Program. To date, four MSI students have become Coverdell Fellows following their Peace Corps service. Three of them describe their Peace Corps service and their assessment of its impact on their future information-based careers:

Jeff Bennett is taking advantage of the many UMSI opportunities to explore open access to information for education, an interest he developed during his Peace Corps experience in the Dominican Republic. Through engaged learning opportunities like Citizen Interaction Design and the A2 Data Dive, Jeff has learned how to use information to make tangible impacts on communities, and through his PEP internship on the Open. Michigan team in the U-M's Medical School Information Services, he has enriched his career outcome by advocating for open educational resources that impact a global audience.

Jessamine Bartley-Matthews's experience in the Peace Corps taught her both hard and soft skills that she needs to succeed as a user experience designer. As an agriculture volunteer in Nicaragua, she worked with rural farmers to install appropriate technologies to improve their daily lives, and learned quickly to embrace ambiguity and take the time to identify user needs before implementing projects. Her service also taught her the importance of building strong teams with a variety of skills and gave her confidence to take on tough societal challenges.

Peter Gray worked on English language instruction and promoting student-centered learning in an elementary school in the Kingdom of Tonga. Ensuring his success was the effort he put into learning about Tongan culture and language, how things worked at the school, and the dynamics of Tonga's education system. His Peace Corps experience has increased his appreciation of how cultural differences affect user behavior and his eagerness to develop new skills that are key to the user research he does as an aspiring user experience designer.

Public Service Internship Grants

Through Public Services Internship Grants, UMSI provides funding to master's students who want to participate in internships that have a direct effect on underserved populations but their sponsoring community organizations are unable to provide financial support. Here are briefings on three of the nine students to whom the School awarded grants of up to $5,000 in 2015:

MSI (Data Science) student Arun Varghese worked as a Data and Analytics Intern with the non-profit GiveDirectly in Kisumu, Kenya, exploring new ways to find and identify recipients for GiveDirectly's cash transfers. Arun's work will help to ensure that GiveDirectly can rapidly identify and send transfers to the poor across a wider range of settings and contexts.

MSI (Preservation of Information) student Fan Luo interned at Alibaba Group in Hangzhou, China, where she analyzed relationships between Alibaba's main departments to streamline future data collection and processing in the future and ensure its usefulness for new product development.

MSI (Archives and Records Management) student Adam Lott worked at CUNY-TV in New York where he digitized video from the library's collection of in-house video, video from defunct stations, and independent film video for future broadcast.

Alternative Spring Break

Alternative Spring Break (ASB) provides opportunities for students reach beyond the confines of the academy, engaging in a service-oriented integrative learning experience, honing their skills, and gaining valuable on-the-job experience. When they do so, they are confronted with the needs of a diverse and global society and/or underserved populations. Here are brief descriptions of students' recent ASB experiences.

At the Wayne County (Michigan) Braille & Talking Book Library, Shelby Stuart converted recordings of old-time radio shows into a format that could circulate to patrons. She downloaded recordings from an online archive, edited the recordings in Audacity software,

and spliced them together into five-episode mp3 files while maintaining their embedded metadata for cataloging. Hearing library patrons express their excitement listening to the old-time radio shows she prepared for them gave her great personal satisfaction.

At the Smithsonian Center for Folklife and Cultural Heritage in Washington DC, Martha Stuit helped develop a workflow to display digitized photographs of recording artists and music albums on the Center's website. Specifically, Martha exercised her technical skills and understanding of digital collections to connect people with information, and generally, she played an important role in increasing public access and exposure to archival materials.

At the John Crerar Library in Chicago, Elizabeth Gadelha and Abbey Wang performed the initial research and curation for both the online and physical exhibitions to celebrate the 100th anniversary of the National Park Service. Despite choosing different specializations, both team members will be able to draw on their experience—narrowing the scope of such a mammoth topic and sourcing relevant raw materials from the library collections to illustrate the exhibition—when pursuing their respective careers.

At the Institute of Museum and Library Services (IMLS), Alyssa Hanson conducted a small-scale evaluation of STEM projects funded by IMLS in 2013. Using each project's white paper as a starting point, she developed a range of questions to address missing information. She conducted interviews with a subset of the recipients, taking notes and synthesizing them for a presentation to the IMLS staff so that IMLS could begin an assessment on the impact of their funding. Her experience reaffirmed her decision to be a librarian implementing the types of projects she evaluated for this project.

At the National Library of Education (NLE), Amy Eiben organized and inventoried materials pertaining to the NLE's history to provide better access for staff writing a comprehensive history of the NLE. NLE librarians made themselves accessible, encouraging her to ask questions about their respective roles so that she could apply what she learned to her current library practice and her future career in libraries.

Relevant Research Projects:

UMSI faculty are engaged in research that addresses a diverse and global society and/or underserved populations. Here are examples of faculty efforts in this regard.

Professor Paul Edwards co-led the official University of Michigan delegation of eight students and two faculty to COP21 (2015 Paris Climate Conference) in December 2015 where they observed negotiations first-hand, attended numerous side events, and reported to U-M and the world via Facebook, Twitter, and the climateblue.org blog. After returning, the student cohort organized a report-out event in North Quad, which was attended by over 100 people, including representatives of several U-M and Ann Arbor NGOs.

Professor Kristin Fontichiaro leads the IMLS-sponsored Making in Michigan Libraries Project that brings multi-day professional development on the maker culture and movement over a two-year period to rural and underserved populations throughout Michigan, including two sites in the underserved Upper Peninsula. Ongoing virtual

support via Maker Offices connects these populations to urban and suburban communities. Her Making project grew out of Michigan Makers, a four-year initiative where faculty and MSI students hone their making skills in Ann Arbor's lowest-achieving schools and serve as mentors to aspiring makers in an afterschool makers program.

Stimulated by his own and his MSI students' anecdotal observations, Professor Kentaro Toyama has embarked on a qualitative study of Asian, Middle Eastern, and American women, investigating why they pursue or avoid STEM-related careers. Additionally, his Project Boost recruits Detroiters who want to earn additional income giving neighborhood tours. In both projects, Professor Toyama employs MSI students. For example, an MSI student working on Project Boost applies her interest in oral histories to the development of itineraries and scripts for neighborhood tours.

Professor Kevyn Collins-Thompson leads Project DSCoVAR (http://dscovar.org) that is aimed at helping middle-school children who are enrolled in Atlanta- and Pittsburgh-based after-school programs for the economically disadvantaged improve their literacy skills. Working with him is an MSI student who has contributed to the design and implementation of an intelligent tutor web interface that exposes learners to new words in a variety of well-controlled contexts.

The School's wide ranging co-curricular activities are yet another venue where students are exposed to the needs of a diverse and global society and/or underserved populations. The U-M's annual Reverend Dr. Martin Luther King, Jr. Symposium (http://oami.umich.edu/um-mlk-symposium/) is one of the largest celebrations of Dr. King's life and legacy sponsored by colleges and universities in the nation. Academic units, research centers, and the U-M generally invite dozens of speakers to campus to speak on diversity, inclusion, and human rights. In January 2016, UMSI and the U-M Library joined forces, co-sponsoring the visit of Alicia Garza, co-creator of the viral Twitter hashtag and associated movement #BlackLivesMatter.

UMSI Service Day is held on the Saturday preceding Monday's King Symposium celebrations. In January 2016, UMSI students, faculty, staff, and administrators volunteered in Detroit and Ann Arbor at Friends in Deed, Detroit Green Map, Ypsilanti District Library, Ann Arbor District Library, Matthaei Botanical Gardens, City of Ann Arbor Natural Preservation, CivCity Ann Arbor, Detroit Sound Conservancy, and many more organizations.

In March 2016, UMSI's Career Development Office-sponsored the "Women in Information Career Series," kicking off with a series of workshops, programs and speakers focusing on careers for women in information. Open and applicable to all, the series had an emphasis on women's career outcomes and strategies for success. Anchoring the 2016 series was a presentation by Erin Teague, director of product management at Yahoo where she is responsible for new user growth of the company's fantasy and sports products. Her presentation advised UMSI students about "Getting Your Worth in the Tech Industry."

The student-led Multi-Ethnic Information Exchange (MIX) sponsors lectures focused on diversity. Recent speakers and their topics are Elaine L. Westbrooks on "Wayfinding and Opportunity: Transitioning from Graduate Life to Career" and Keith Williams on "Quantity and Quality: A Look at Elements and Their Implementation Designed to Enhance Retention Resulting in an Increase in the Ethnic Diversity of Science-Related Degrees Awarded."

II.2.5 Provides direction for future development of a rapidly changing field.

Elective courses fulfilling the standard: 500, 519, 523, 549, 580, 581, 620, 625, 629, 640, 641, 643, 647, 649, 663, 665, 666, 671, 675, 678, 689

Exemplary Courses:

Intellectual Property and Information Law (519) draws upon the contexts of education, business, and government, with a special emphasis on the changing nature, roles, and responsibilities of educational institutions to describe the competing legal and policy frameworks for the development and dissemination of ideas and expression in the information age. Its exploration of how new technologies challenge past assumptions and affect current law and policy may be a key to unlocking what the future holds.

Transformative Learning & Teaching with Technology (549) examines the role that high-performance computing plays in learning and teaching environments. Initially students write a personal reflection that describes their conceptual framework for evaluating or critiquing the use(s) of technology for learning, then rework it at the end of the semester, reflecting on assigned readings, in-class discussions, and experiences in other courses. Students are encouraged to test their ideas, blogging about them and challenging their peers to respond with substantive blog posts. Students are also responsible for carving out a project that interests them personally vis-à-vis technology in learning and teaching environments.

Digital Preservation (625), *Preserving Sound and Motion* (678), and *Digitization for Preservation* (675) address cutting-edge issues in digital preservation. All three heavily rely on research and evaluate current practice in order to help students not only to work in but also to move the profession ahead in these areas.

Digital Libraries and Archives (640) focuses on the past, present, and future of digital libraries and archives as objects of research, practical applications, and manifestations of the future of existing libraries and archives. Mastering a diverse literature and completing assignments enables students to participate actively in the discussion of issues and reinforce understanding of tools, technologies, and trends.

Work in *Information Visualization* (649) is fast becoming a core function for data analysis. Expertise in this area is in high demand not only from the commercial and government sectors, but from libraries where we are witnessing the emergence of new types of librarians who assist end users in finding, manipulating, analyzing, and visualizing diverse types of data and who apply visualization to developing and refining library collections.

Online Searching and Databases (665) speculates on current trends and issues that are bound to play an important role in how online searching evolves over the next three to five years, for example, changes to search system functionality and databases, disambiguating legitimate retrievals from everything else, the demise of Boolean search systems and licensed databases, and personal data including search topics and downloaded retrievals.

II.2.6 Promotes commitment to continuous professional development and lifelong learning, including the skills and competencies that are needed for the practitioner of the future.

Elective courses fulfilling the standard: 501, 502, 519, 520, 523, 529, 530, 538, 539, 543, 544, 563, 580, 581, 582, 622, 623, 625, 626, 627, 629, 631, 641, 643, 647, 658, 663, 664, 665, 690

Exemplary Courses:

In *Contextual Inquiry and Consulting Foundations* (501), students learn a method of examining and analyzing an information flow or process in an organization that they can apply to a wide variety of subsequent information-use problems during the academic career at UMSI and beyond.

In *Managing the Information Technology Organization* (627), students create a career portfolio that showcases their education, skills, and highlights from recent projects to help them envision their career beyond this course. Students are encouraged to add to their portfolios beyond this professional program, charting their career trajectory over the long-term.

Students in *Community Interaction Design* (538) benefit from multiple opportunities to train in and practice professional communication from their presentations with external clients, written communication, and formal pitches. They also receive in-class training and external evaluation from practicing professionals about their professional communication skills.

In *Digital Preservation* (625), the instructor begins each class by showing a job description for a real open job position that requires knowledge of the topic discussed that day and ends each class with a discussion of where to get more information on the topic, with special reference to continuing education that could be obtained after graduating from UMSI. Students really liked this approach of bracketing the content of the course with jobs and education.

In both *Information Resources and Services* (647) and *Online Searching and Databases* (665), students learn how to negotiate users' information needs, finding out what they really want—an interpersonal communication skill they can apply in a variety of information-seeking and fact-finding contexts throughout their professional careers.

In *Online Searching and Databases* (665), students learn a methodology, that is, exactly what questions to ask and answer about how search systems/engines work so that they can quickly come up to snuff on searching any system in the course of satisfying their own information needs or helping others in the future.

In *Internship/Field Experience* (690), students utilize reflective learning skills, assessing their internships vis-à-vis their overall career goals and what they learn in formal classroom settings so that they reach deeper levels of self-awareness and lifelong learning.

II.3

The curriculum provides the opportunity for students to construct coherent programs of study that allow individual needs, goals, and aspirations to be met within the context of program requirements established by the school and that will foster the attainment of student learning outcomes. The curriculum includes as appropriate cooperative degree programs, interdisciplinary coursework and research, experiential opportunities, and other similar activities. Course content and sequence relationships within the curriculum are evident.

(Responses to this standard are split into separate discussions II.3a to II.3c below.)

II.3a

The curriculum provides the opportunity for students to construct coherent programs of study that allow individual needs, goals, and aspirations to be met within the context of program requirements established by the school and that will foster the attainment of student learning outcomes.

That MSI students are able to construct coherent programs of study and attain their learning outcomes depends on a variety of services, events, and meetings in which staff and faculty work together to help students achieve their academic goals. Thus, our response to this standard features the wide array of resources the School provides to MSI students to help them learn about and navigate the program. Resources are covered in a logical fashion, beginning with fall visiting days (called "Connect with UMSI") when prospective students visit UMSI prior to submitting an admissions application and ending with the advising tools that active students consult to plot their milestones as they progress toward graduation.

Fall Visiting Days ("Connect with UMSI")

Scheduled in the second half of October, Connect with UMSI (http://www.si.umich.edu/academics/connect-umsi) invites prospective students to campus to learn about the MSI curriculum, admissions process, financial aid, and career services. Prospective students also have opportunities to ask questions, interact with faculty, and get a chance to see what UMSI is all about. During the event, we want prospective students to experience the energy and enthusiasm of the UMSI community and become excited about the possibility of joining our diverse and dynamic school. Videos of Connect with UMSI presentations are posted online so that those who are unable to attend can watch them anytime and those able to attend but wanting reinforcement and clarification can replay them. UMSI offers scholarships to this event for students who demonstrate financial hardship, such as those who have previously qualified for a Pell Grant.

Spring Visiting Days

Admitted students to the MSI Program are invited to enjoy an extended three-day weekend featuring activities to familiarize them with the program, learning about formal and informal opportunities both inside and outside the classroom, and what it is like to be a member of the U-M learning community generally. Scheduled annually on the third Sunday in March, Visiting Days includes faculty who brief students on the curriculum, research, and current information issues in mini-lectures and over a fact-filled, leisurely lunch. Students who stay through Monday can participate in the Networking Fair where they can connect with campus and local organizations including exploring part-time jobs for the summer and fall months, tour the ExpoSItion where current students display their class projects and talk about their internships, and sit in on classes.

Transitioning Incoming MSI Students to UMSI

Entering MSI students participate in an online community through the U-M's CTools course management system, which provides a forum for information sharing, networking, and advising. Information from faculty specialization coordinators is posted to guide new students' initial course selections for each specialization. Career counselors offer professional development sessions where they help incoming students polish their resumes and find part-time jobs. Live advising chat sessions are held so that entering students can ask questions and get immediate responses from advising staff and current students. Current students also host chats and organize forum discussions with a focus on building community and supporting the incoming cohort's move and transition to UMSI.

MSI Orientation Experience (MORE)

New MSI students are admitted in winter and register in July for their first semester in fall. At fall orientation, incoming students attend the four-day MSI Orientation Experience (MORE) where selected faculty and staff brief them on program logistics, features, and academic highlights. With respect to academics, incoming students learn the objectives of the MSI Program and explore their goals for academic achievement, career development, and personal growth. They also meet with faculty to discuss specializations and mastery courses, prerequisite and recommended courses, and research and service opportunities. Faculty lead a discussion about standards and expectations related to academic integrity and professional ethics for graduate education and future professional practice. Students also learn how they can enrich their formal studies with entrepreneurial activities, participation in I3 programs, and other co-curricular activities. Beginning in fall 2016 (in sync with the MSI Program's transition from current to future curriculum), orientation features an information-based design problem, distributing students into diverse teams, providing them relevant resources and expertise, challenging them to generate solutions, and present them to the UMSI community (see also standard II.1c).

Academic Advising

Both faculty and professional staff provide academic advising for MSI students. Faculty hold weekly office hours and are available to students by appointment. For two weeks in mid-November, faculty engage in formal academic advising, publishing their availability on their Google calendar in advance where students can sign up for one or more 20-minute advising periods individually or in groups. Although faculty discussions with students during these advising periods usually address the courses they plan on taking in winter semester and beyond, students are free to talk about any aspect of the academic program and typically meander, talking about their career goals, improving their level of performance, and personal issues that affect their studies.

Here is the mission of UMSI's academic advising:

> *UMSI academic advising empowers students to think broadly about their educational experiences and create meaningful academic plans that will advance their personal and professional goals. Through individual conversations, group programs and workshops, and resource sharing, advisors challenge and support students to become self-directed learners, informed decision makers and engaged members of the UMSI community and beyond.*

With regard to the MSI Program, OSA has one full-time professional academic advisor whose primary job is to guide MSI students in the development their academic plan and toward the completion of the degree. Additionally, several OSA staff members support the MSI advising process, providing personal and academic support, informing students on degree requirements and academic policies, supporting students in creating meaningful academic plans, conducting graduation pre-audits, helping students navigate resources at UMSI and at the U-M generally, and assisting students with complex challenges or unexpected difficulties as they complete the degree.

Student organizations that relate to specializations or to common career aspirations offer peer advising sessions that foster communication between advanced and newer students. OSA is also in the pilot phase of a peer advising program, training two MSI students on academic advising prior to sponsoring their peer advising of individual students and groups of students.

Annually, the deans charge one faculty member to advise Tailored students; however, students are always free to consult other faculty as needed. MSI students who pursue the Tailored option are encouraged to elect it early to ensure that they put in place a coherent academic plan. They are required to elect the Tailored option before the semester that they graduate.

Of students who completed the 2015 annual student survey, 87% met with a faculty member for an academic advising appointment at least once, 66% attended a group advising session, and 89% attended faculty office hours at least once. Additionally, 71% met with the MSI academic advisor at least once. As a result of OSA giving peer advising training to thirty student group leaders, student groups offered peer advising sessions and held regular office hours.

Information about academic advising is always available to the UMSI student body and to interested applicants on the UMSI web site. The MSI Student Handbook (see appendix IV.1) is distributed to students at Orientation and available to currently enrolled students by clicking on "MSI links" at the UMSI Intranet. This handbook is a comprehensive document that covers the wide range of information on being a UMSI student at the U-M. Examples are academics, U-M academic policies, funding opportunities, career development resources, employment opportunities, and much more.

MSI students who are put on academic probation as a result of academic difficulty are contacted by the MSI academic advisor, who meets with them to strategize a plan for improvement and provides information and referrals for support services on campus. Faculty advisors also take additional care to assist students who have academic difficulty or face personal concerns during the program.

Current Curriculum's Tracking and Planning Sheets (TAPS)

In the MSI Program's current curriculum, students use Tracking and Planning Sheets (TAPS) to monitor their progress with regard to fulfilling MSI program and specialization requirements. One side of the TAPS enumerates MSI program requirements (appendix II.6): (1) required courses, (2) management and research methods distributions, (3) cognate course(s), and (4) PEP credits. Turn the TAPS over and its verso enumerates specialization requirements, and for certain specializations, their required programming and statistics distributions (appendix II.7). Students have the option of fulfilling TAPS requirements that match the academic year they entered the program or that match the academic year of their graduation. TAPS are especially helpful advising tools, enabling

faculty and staff advisors to quickly and efficiently monitor the numbers and types of credits students have earned and their overall degree progress.

Within the U-M's Wolverine Access System (the central system for online class registration, student billing, and a range of other online services and tools) is an online degree audit tool that encodes MSI degree requirements in such a way that students can view an unofficial degree audit online to monitor their progress towards fulfilling various degree and specialization requirements. As students approach graduation, they may ask the MSI academic advisor or the UMSI registrar team to audit their record, making sure they are on track or have fulfilled all MSI program requirements.

Future Curriculum's Advising Tool

The TAPS may serve as a template for the future curriculum's advising tool. Most likely, this new tool would list the student's selected mastery course and desired career outcome, individual and sequenced prerequisite courses, recommended courses, a PEP-credit checkbox accompanied by mastery-course specific knowledge and skills they should seek from PEP experiences, and a cognate checkbox also accompanied by mastery-course specific knowledge and skills they should seek from such courses. Also included on this might be references or links to strongly correlated career outcomes. For example, when the majority of a career outcome's strongly suggested courses overlaps most of the mastery's required courses, the academic plan could be added to this new tool; however, plans would be for informational purposes only. Students would not be required to complete all of a mastery course's recommended courses.

II.3b The curriculum includes as appropriate cooperative degree programs, interdisciplinary coursework and research, experiential opportunities, and other similar activities.

The MSI's curriculum is by design thoroughly interdisciplinary. Our faculty are scholars with PhDs in, to give a sample, business, communications, computer science, economics, library and information science, political science, and psychology. Several faculty hold dual appointments with their primary appointment at UMSI and their secondary appointment in, to give a sample, School of Art & Design, School of Education, College of Engineering & Computer Science, Economics Department, History Department, and the School of Public Health. This interdisciplinarity is intentional, and although our current curriculum reflects it, it will be even more apparent in our future curriculum where the extent of overlap between courses required for mastery courses will demonstrate a core of courses that are fundamental to the field of information along with unique courses that force students to reach beyond the safe confines of the information field into related and allied disciplines, preparing them for mastery classes and the career outcomes that are in demand today as well as enabling them to respond swiftly and boldly to new market forces that shape the jobs of tomorrow.

Master's Thesis Option Program (MTOP)

As a professional program in a research institution, the MSI Program seeks to strike a balance between the value of practical engagement and the value of research-oriented activities by offering the Master's Thesis Option. Drawing on our distinguished faculty as research scholars and mentors, MSI students spend part of their second year conducting research and documenting findings in a master's thesis. MTOP appeals to students who are considering application to advanced degree programs such as the PhD, giving them

the opportunity to get firsthand experience conducting research and facilitating their decision whether to pursue a doctorate.

In addition to one-on-one faculty advising, MSI students learn about the MTOP at an annual information session held prior to the mid-semester advising period in fall. Interested applicants are encouraged to identify faculty who share similar interests and assign them a research project that helps further the faculty advisor's research agenda. They can also formulate their own research project, preferably one that complements their advisor's research strengths and expertise. While shopping for a faculty advisor, faculty may suggest relevant research methods courses that will prepare the student for the research they plan to undertake. Having identified an advisor, the student arrives at a mutually agreeable project and submits a letter of intent to the Master's Thesis Option Committee (MTOC) describing it.

The MTOC evaluates letters of intent from master's student applicants, confirms faculty advisors, and monitors student progress toward completion. Admitted students enroll in two consecutive independent study courses and work closely with their faculty advisor and one to two committee members. Advisors and committee members give students guidance revising their research questions and hypotheses, identifying relevant readings, choosing methodologies, formulating data collection instruments, documenting data collection procedures with human subjects in IRB applications, collecting data, analyzing data, and reporting their experiments in a written thesis. Students defend their thesis in an oral examination that is administered by their advisor and committee members and is open to other MSI students and the UMSI learning community generally. MTOP students are encouraged to publish their thesis research, and, at the very least, they are encouraged to submit their thesis to the U-M's Deep Blue institutional repository.

Since MTOP began in 2004, the school has averaged about two MTOP students per year. Table II.13 summarizes a handful of MTOP graduates, listing their year of graduation, thesis title, and current professional position. Of the ten MTOP students who successfully completed the program between 2010 and 2015, five are pursuing or have completed PhD programs.

Table II.13. Thesis Titles and Current Positions of Successful MTOP Students

Year	Title / Author	Current Position
2015	Finding Community, Finding Sex: Navigating Disclosure, Geography, and Privacy in Rural Use of a Social Technology for Gay Men / Jean Hardy	PhD student, U-M
2014	A Digital Footprint From Birth: New Mothers' Decisions to Share Baby Pictures Online / Priya Kumar	Research Analyst, Ranking Digital Rights
2013	Documenting Detention: Records of Segregation in Two U.S. State Prisons / Jarrett Drake	Digital Archivist, Princeton University
2012	Disaster Planning for Digital Repositories / Rebecca Frank	PhD candidate, U-M
2010	Songs of Innocence and of Experience / Amanda Visconti	Assistant Professor, Purdue University

Dual-Degree Programs

The School of Information offers six dual-degree programs with other U-M schools. These programs help students create specialized academic programs to meet their specific career interests:

- *MSI/JD. Our dual degree with the Law School is one of only a few offered anywhere, and it is particularly attractive to students who wish to develop their expertise in the field of intellectual property and technology generally.*
- *MSI/MD. Combining the MSI with an MD from the Medical School provides opportunities for students to explore and integrate complementary interests and career goals that demonstrate the ways in which people, information, and technology interact in medical settings.*
- *MSI/MSN. The School of Nursing and UMSI have designed a dual-degree program to meet the needs of students who desire preparation in both clinical management and information management areas of nursing.*
- *MSI/MPP. Students pursuing a dual degree in the School of Public Policy study information and information technologies as well as the policy and regulatory aspects of using them.*
- *MSI/MSW. The School of Social Work has joined forces with UMSI, offering a dual degree that provides academic training and practical experience to improve social workers' effectiveness when dealing with information issues and extends the reach of information specialists in furthering the public good.*
- *MSI/student-initiated. Students may self-initiate a dual degree with another U-M graduate program by contacting their school of interest to find out more about its curriculum and opportunities for dual programming.*

Engaged Learning Opportunities: The Practical Engagement Program (PEP)

Practical engagement continues to be a distinctive feature of UMSI's masters-level professional programs. PEP integrates the application of knowledge and skills to specific problems outside the classroom and requires students to combine what they learn in the classroom with what they observe and experience in the "real world." MSI students admitted under the current curriculum or future curriculum are required to earn six Practical Engagement Program (PEP) credit hours. Annually, 100% of SI's student body participate in one or more internships.

PEP provides students with a monitored, mentored, and reflective internship experience that is supported by the School's Career Development Office (CDO) and its professional development activities. Organizations searching for student interns post position announcements to iTrack, CDO's comprehensive online recruiting system. Students search iTrack by industry area, preferred job function(s), geographic location, and/or by keyword search to find internships that interest them; additionally, they are required to display internships at the web-based PEP internship exhibits (click on "All Works" at https://seelio.com/g/pep/). With the implementation of curriculum reform, we envision that the future curriculum's tracking system that replaces the current curriculum's TAPS will designate the characteristics of PEP internships that students should seek to prepare themselves for their selected mastery course.

PEP internships are administered and managed by a career development team consisting of four staff members: three career services professionals and one administrative assistant. Members of the career development team assist students in identifying internship opportunities through ongoing professional career counseling and self-assessment, including career exploration, resume and cover-letter review, interview preparation, and

identifying and cultivating internship leads. PEP's associate director reviews all internship proposals organizations post to iTrack to make sure they meet academic criteria for credit, provides instructions and guidelines to mentors, and reviews and evaluates final student and mentor evaluations. Students are required to enroll in at minimum six credits of internship curriculum that includes reflective practice, professional preparation, and portfolio development.

UMSI faculty, in collaboration with CDO, developed the following academic criteria to make sure that internships provide students with high-level, relevant professional experiences that directly tie into the MSI curriculum:

- *Field of work must be related to the curriculum and research at UMSI*
- *Work must be professional and at a level considered appropriate for graduate studies*
- *A mentor with three years or more years of relevant experience must oversee the student*
- *The position's function must be an incremental learning experience*
- *The position must be with an outside organization or have an external affiliation from UMSI and give the student opportunities to network and have contact with external constituents for more than 50% of their time*

PEP Internships and Post-Reflective Activities

MSI students use iTrack to identify, select, secure, and evaluate their internships, the Canvas course management system to reflect on their experiences, and Seelio to exhibit internship-specific accomplishments (appendix II.9).

CDO's associate director has developed Internship/Field Experience (690), a post-reflective career development seminar in which MSI students enroll following their full-time summer internships. The course's series of self-reflections are a tool for students to use to reflect upon their internship experience and to create self-knowledge that they will draw on in the future for networking and overall professional development including interviewing, developing professional presentations, and writing resumes and cover letters. Ultimately, PEP experiences provide students with a comprehensive learning experience that integrates classroom learning with experiential learning and career planning, aspirations, and decisions. Here are details of a handful of the PEP internships. See the PEP Gallery (https://seelio.com/g/umsi/gallery/all) for more examples.

As data visualization intern at the U-M's Clark Library, Amana Kaskazi put her data visualization skills to work on creating interactive visualizations that track the life, travels, performances, cultural context, and repertoire of the 19th-century African American actor Ira Aldridge. Exposed to digital humanities for the first time, she followed up with coursework in this area and now seeks professional positions that includes knowledge of digital humanities.

A student intern at the Wayne County Library for the Blind and Handicapped, Meagan Daniels assisted hundreds of users, providing reader advisory services and technical support for various assistive technologies. Her experience reinforced her desire to assist library users with vision impairments and promote barrier-free access to information.

At The Henry Ford in Dearborn, Michigan, Nicholas Piontek served as the Roddis Clothing Collection Curatorial Intern. He arranged and described into a coherent finding aid what has become one of the first physical-digital hybrid collections at The Henry Ford. The process allowed him to interact with many different staff members at The Henry Ford to learn about the archival profession. The internship gave him practical, hands-on archival experience along with a strong network that helped him find his first job after graduation.

An intern in the U-M's Hatcher Library, Joanna Thielen provided reference, instruction, and research support services. She developed selection criteria for weeding science and technology books from the undergraduate library's collection and developed a new workshop for library staff on how to use and edit the library's public services wiki. She gained experience collaborating with staff across different U-M libraries, developing instructional materials, and putting theory from coursework into practice.

An intern at the Romulus Public Library (Michigan), Alyssa Hanson performed a wide variety of tasks: developing a survey to learn about community needs, teaching one-on-one computer classes, promoting early childhood literacy, selecting materials for community read boxes, posting to the library's Facebook and Twitter pages, providing reference services, and much more. Her experience reinforced her commitment to libraries as a facilitator for learning, providing opportunities, resources, and spaces for people to take ownership of their education.

Evaluating PEP

All UMSI students complete surveys at the completion of their PEP internships. Between 2014 and 2015, 92% of these students reported internships as one of the most valuable UMSI experiences impacting their job outcomes and career success.

All mentors at sponsoring organizations complete surveys at the completion of their mentee's internship. In 2015, 100% of these mentors said that they would mentor a UMSI student again. Here's what they said about their mentees:

"[My mentee] has been superlative. An excellent colleague and friend, and an essential part of Wolverine Press' growth over the last year. If I can make a job for him, I will hire him. He is single-handedly developing our book history scholarship program." (Wolverine Press)

"[My mentee] has exceeded expectations with the quality and quantity of work she has submitted. She has developed great working relationships with everyone in OSA [The Optical Society], and I appreciate her positive attitude, initiative, and willingness to assist as needed. She contributed greatly to improving OSA websites and developed a procedure manual to help maintain the new Academic PhD website." (U-M College of Engineering)

"[My mentee] is an incredibly productive worker…His feedback to the organization through the additional contextual inquiry he completed was extremely prescient and applicable. The project required some tight scheduling near the end of the internship when he would have ideally been able to be wrapping up project documentation. Our organization absolutely needed to implement a CRM, but it would have taken a minimum of nine more months for me to complete a simple user guide and staff training. [My mentee] completed this in two months as well as [creating] screencasting videos [to] orient new students." (Concordia Welfare & Education Foundation)

"[My mentee] is one of the best PEP students that I have mentored. She did a wonderful job in organizing the collection. She developed two wonderful guides for searching Medline Plus and NIH for patients visiting the Resource Center that I will use in our outreach activities to the community." (U-M Taubman Health Sciences Library)

"[My mentee] is incredibly intelligent and hard-working, and though he was only an intern, he proved that he was able to take complete ownership over projects like a full-time member of our team. This is a first for an intern, and impressed the entire team. He had all the skills we look for: keen analytical abilities, curiosity in people and products, precision in her reporting and planning. He was a tremendous help to our team, and we both learned from the experience." (Yahoo!)

CDO surveys MSI graduates every year on their employment outcomes and job satisfaction. During the period from 2011 to 2016, on average, 90% of graduates consistently rated PEP as one of the most valuable graduate school experiences that impacted their employment outcomes, readiness for their career, as well as job satisfaction after graduation. Comments include:

"My internship was the most valuable thing I did in school to prepare me for the real world of work."

"My internship turned into a full-time job which proved to be the most valuable experience and outcome of my graduate school experience."

"Honestly, without that hands-on experience, I would not have had anything to talk about in a job interview about something I accomplished outside of the classroom. My internship was valuable to even getting a job interview."

"Every job interview I had specifically cited and/or asked about my internship or hands-on project work so I know it was critical to getting my job offer."

"The PEP internship requirement was paramount in obtaining my position as a Health Sciences Librarian. Through my internship I was able to gain two years of professional work experience while going through the program. That amount of experience made me more desirable to employers."

Engaged Learning Activities: Alternative Spring Break (ASB)

The Alternative Spring Break (ASB) program is another important engaged learning component of the MSI Program, with a specific focus on public service. ASB is covered in standards II.1c and II.2.4 with several examples accompanying the latter. A total of 74 MSI students participated in ASB-2015 providing service to 42 sponsoring organizations. Examples of three organizations in Chicago Re: on, DC, are the American Library Association, the Swedish American Museum, and the University of Chicago Library. Three examples from Washington, DC are: the Digital Library Federation, the Institute of Museum and Library Services, and the National Museum of American History.

During the period 2012 to 2016, 99% of the 322 UMSI students who participated in ASB rated the experience "average" to "excellent." Mentors from ASB-sponsoring organizations described the impact the ASB experience had on everyone involved:

> *"The students pointed us in the direction we needed to go. We had no experience in archiving, and we benefited greatly from their expertise." (Community TV Network, Chicago)*

> *"The ASB program helped us establish a collection of old-time radio shows that are typically unavailable unless you have an internet connection. People with visual impairments now have an easy way to obtain and listen to old-time radio, and can do so without any computer knowledge or access required." (Wayne County (MI) Braille and Talking Book Library)*

> *"The student's arrival forced me to focus on a project that I'd had in mind but kept delaying in lieu of other priorities for some time. This project resulted in a renewed engagement with our archivists here at Folklife and also a better understanding of how their work can benefit our website. The student made a real impact on our need that will continue beyond this week." (Smithsonian Center for Folklife and Cultural Heritage)*

> *"We now have an excellent basis from which to evaluate and update our content, and the student's perspective from outside the library and outside DC is invaluable in pointing out flaws that staff have gotten so accustomed to we don't even see them any more." (District of Columbia Public Library)*

Course-Based Engaged Learning Activities

So many MSI courses feature engaged learning and experiential activities, preparing students to hit the ground running as professionals in a variety of information-intensive organizations. Here are examples:

- In *Citizen Interaction Design* (538), student teams build a product that solves an information problem for the city of Jackson, Michigan, and comparably-sized Michigan cities. Building includes prototyping, wireframing and user profiling up front, with implementation and hand-off following quickly. Plus, groups receive iterative feedback from their city partners such as mayors, city managers, city councilmen, and non-profit executives.

- In *Preservation Administration* (581), students prepare a preservation risk assessment of a local library, archive, or museum collection. They are assigned a client, interview its collection manager, view storage, use, and display spaces, and draw on coursework, research, and investigation for their analysis. They share their written report bearing findings and prioritized recommendations for improvements to better preserve the collection in class and with the client.

- In *Needs Assessment and Usability Evaluation* (622), each student takes one or more leadership roles, managing a fast-paced evaluation project that involves interacting with a real client at a company, setting goals and milestones, and meeting biweekly deadlines with professionalism and maturity. Ultimately, this course prepares students for user experience jobs where they do much the same: addressing clients' needs, leading product development, and managing diverse teams.

- In *Agile Software Development for Content Management Systems* (631), students assess their client's needs, and, using an agile methodology, develop a working web site including documentation and training materials. About 60% of the sites students build are still in use a year later. The instructor adds that clients tell him how much they like the work students do, and students tell him they like being able to work with a real client and able to risk "failing at something" without getting fired.

- In the 2015-2016 academic year, *Digitization of Cultural Heritage Resources* (675) was redesigned as a 3-credit lab course where students are assigned a real-world archival collection to digitize that involves working with client agencies and then carrying out digitization and cataloging activities across the entire workflow, creating a digital collection, and presenting the results to the client. This new approach works well making the course genuinely experiential, albeit in a lab setting.

- *Advanced Project and Social Computing Design* (694) teaches students how to transform an idea into a product. Moving an idea from the conceptual phase into prototyping and product design requires a combination of design thinking, software and hardware development skills, social computing analysis, and interdisciplinary team leadership—all experiences that this course provides in the course of preparing students to engage in product design, start-ups, and human-centered design.

Engaged Opportunities: Public Library Associates Program

Biannually, the Ann Arbor District Library (AADL) recruits MSI students to fill Public Library Associate (PLA) positions. PLA offers paid, practical library experience for students specializing in information and library science. Students may hold these positions for up to two years while completing their MSI degree, including semester breaks and intervals between semesters. The positions end at graduation or after two years, whichever occurs first.

AADL has partnered with UMSI to provide a Public Library Associate Fellowship. This unique opportunity, within the Public Library Associates Program, provides the experiential aspects of the PLA and an engaged learning opportunity to bring classroom knowledge into the workplace and vice versa, combined with an assigned professional mentor, leadership training, and a full scholarship from UMSI.

Engaged Opportunities: Professional Practice Fellows Program

The School is in the early years of a new Professional Practice Fellows Program, which provides top MSI students a chance to gain hands-on experience and training in professional practice, leadership, and academic exploration. Students in the fellows program receive a full tuition scholarship, a paid Professional Practice Assistantship, an assigned faculty and/or alumni mentor, health insurance, a conference travel stipend, a laptop, and leadership and professional development support. A premier educational opportunity, the fellows program has the potential to lead to a robust and complete portfolio and network upon graduation. Current and upcoming positions will enable students to focus on data analysis and curation, UX design, and reference and research service.

II.3c Course content and sequence relationships within the curriculum are evident.

At the UMSI website is the School's online course catalog (https://www.si.umich.edu/programs/courses/catalog) that lists all courses, their names, numbers, prerequisites, credits, instructor, day, time, abstract describing course content, and a link to the course syllabus. In general, introductory courses are assigned numbers in the 500 range and more advanced courses are assigned numbers in the 600 range. MSI students are required to take a minimum of three credits of cognate coursework and may take a maximum of six cognate credits. These credits may include cross-listed courses if the course is owned by another school or college. A list of student-recommended cognate courses is also available at the UMSI web site. UMSI has adopted the list of approved graduate level courses published by the Rackham Graduate School to guide MSI students toward appropriate cognate courses . For an abstract and prerequisites list, students navigate to the U-M's Wolverine Access (https://wolverineaccess.umich.edu), scrolling below the fold and clicking on the "U-M Course Catalog" link, searching and browsing the Catalog, checking a course's "Enrollment Information" field for prerequisites and scanning the "Description" field for an abstract.

With respect to the current curriculum, faculty and staff advisors suggest students enroll in the School's three foundations courses during their first two semesters in the program. *Information and Social Systems* (500) gives students a deep understanding of the theories and concepts important for all information professionals. *Contextual Inquiry and Consulting Foundations* (501) puts students to work in teams to investigate information use in real-world contexts where they conduct field research to inform the design of a workflow, app, product, or program. *Networked Computing* (502) provides grounding in the network and computing technology central to the information professions. Students who take foundations courses as soon as possible have two advantages: (1) they may enroll in the many elective courses that require completion of or simultaneous enrollment in foundations courses and (2) they become familiar with their cohort so they can draw on them to apply a wide range of expertise and disciplinary knowledge to group projects, class discussions, and breakout groups.

For students pursuing the MSI degree via the current curriculum, OSA maintains advising worksheets for degree planning called Tracking and Planning Sheets (TAPS). TAPS worksheets provide a form with a complete set of degree requirements and options for the degree customized to each of our current curriculum's degree specializations (see appendices II.6 and II.7). Students use TAPS to plan their curriculum and to monitor their progress

toward the degree. One side of the TAPS enumerates MSI Program requirements (see appendix II.6): (1) required courses, (2) management and research methods distributions, (3) cognate course(s), and (4) PEP credits. The other side enumerates specialization requirements including required programming and statistics distributions for some specializations (see appendix II.7). TAPS for each specialization indicate what semester and year courses are offered so students and advisors can plan ahead, charting the student's academic plan for one or several semesters or from start to finish.

For students pursuing the MSI degree via the future curriculum, mastery courses will give students direction about prerequisite courses and course sequences. The TAPS will most likely serve as a template for the tracking approach that the future curriculum embraces. Most likely, this new tracking approach would list the student's selected mastery course, individual and sequenced prerequisite courses, recommended courses, a PEP-credit checkbox accompanied by mastery-course specific knowledge and skills they should seek from PEP experiences, and a cognate checkbox also accompanied by mastery-course specific knowledge and skills they should seek from cognate courses.

In preparation for the future curriculum, faculty are now contemplating course sequencing and content for various mastery classes. For example, faculty have added *Programming I* (506) to the School's technical courses to fill a gap, equipping students with intermediate-level knowledge and skills that they need to be successful in advanced courses. Now students who are admitted to UMSI with no prior technical skills other than the general use of a computer can pursue the School's technical topics, taking the course sequence 502>506>507 that prepares them for advanced courses in information visualization such as 618 and 649, or the course sequence 502>506 that prepares them for advanced courses in web development, such as 539, 543, and 664. Eventually these course sequences will be represented in the future curriculum's tracking approach for mastery courses.

II.4 Design of general and specialized curricula takes into account the statements of knowledge and competencies developed by relevant professional organizations.

A variety of factors serves as the impetus for the current curriculum's specializations, including historical expedience, faculty expertise, career opportunities, and student interest. Currently, MSI students choose between seven specializations. Annually, the dean appoints a coordinator for each specialization who is assisted by faculty teaching the bulk of courses in the specialization. Together, they make up specialization committees that conduct the business of the specialization, such as curriculum planning, new course development, course sequencing, review of TAPS, and periodic specialization review.

Providing specialization coordinators and their committee's guidance for specialization requirements and course content are statements of knowledge and competencies developed by relevant professional organizations. Table II.14 lists selected MSI specializations and examples of knowledge and competency statements issued by the American Institute for Conservation (AIC), American Library Association (ALA), Association for Information Science & Technology (ASIS&T), Association for Library Collections and Technical Services (ALCTS), Association of College and Research Libraries (ACRL), Association of Records Managers and Administrators (ARMA), International Standards Organization (ISO), Preservation and Reformatting Section (PARS), Rare Books and Manuscripts Section (RBMS) of the Association of College and

Research Libraries (ACRL), Reference & User Services Association (RUSA), Society of American Archivists (SAA), and U.S. Federal Agencies (USFA).

Table II.14. Knowledge and Competency Statements Guiding MSI Specializations

Specialization	Statement
Archives & Records Management (ARM)	Guidelines for a Graduate Program in Archival Studies (SAA) SAA Standards Portal (SAA, standards for education, working with materials, and interacting with the public) Competencies for Special Collections Professionals (RBMS) Code of Ethics for Special Collections Librarians (ACRL) RBMS Standards Portal (RBMS, provides guidelines and standards for professional functions) Records and Information Management Core Competencies (ARMA) ARMA Standards Portal (ARMA, standards, guidelines, and best practices relating to records and information management)
Specialization	Statement
Library & Information Science (LIS)	Code of Ethics (ALA) Core Competencies (ALA) Educational Guidelines (ASIS&T) Framework for Information Literacy for Higher Education (ALA/ACRL) Guidelines for ALCTS Members (ALCTS) Guidelines for Behavioral Performance of Reference and Information Service Providers (ALA/RUSA) Information Literacy Competency Standards for Higher Education (ALA/ACRL) Professional Competencies for Reference and User Services Librarians (ALA/RUSA)
Information Analysis & Retrieval (IAR)	Curricula Recommendations (ACM)
Preservation of Information (PI)	Code of Ethics and Guidelines for Practice (AIC) Definitions of Digital Preservation (ALCTS/PARS) Open Archival Information System (ISO) Digitization Guidelines (USFA)

Like knowledge and competency statements issued by professional organizations, the textbooks that faculty choose for their courses are sources of knowledge, skills, and competencies for students developing proficiency in their chosen specialty. Table II.15 lists examples of textbooks for courses across most MSI specializations. Textbooks in later editions are truly test-of-time clues that demonstrate the textbook's long-term success and relevance.

Table II.15. Textbooks Are Knowledge, Skills, and Competency Sources

Course #	Course Name/ Specialization	Textbook's Citation
530	*Principles of Management* (fulfills the MSI management distribution)	Carpenter, Mason, and others. 2013. *Principles of Management*. Version 2. ISBN: 978-1453327807
534	*Theories of Social Influence* (SC)	Cialdini, Robert. 2008. *Influence: Science and Practice*. 5th ed. ISBN: 978-0205609996
561	*Natural Language Processing* (IAR)	Jurafsky, Daniel, and James Martin. 2008. *Speech and Language Processing*. 2nd ed. ISBN: 978-0131873216
562	*Microeconomics for Information Professionals* (IEM)	Varian, Hal. 2014. *Intermediate Microeconomics*. 9th ed. ISBN: 978-0393123968
563	*Game Theory* (IEM)	Watson, Joel. 2007. *Strategy: An Introduction to Game Theory*. 2nd ed. ISBN: 978-0393929348
581	*Preservation Administration* (PI)	*IPI's Guide to Sustainable Preservation Practices for Managing Storage Environments*. 2013.
620	*Collection Development and Management* (LIS)	Johnson, Peggy. 2014. *Fundamentals of Collection Development and Management*. 3rd ed. ISBN: 978-0838911914
622	*Needs Assessment and Usability Evaluation* (HCI)	Goodman, E. 2012. *Observing the User Experience*. 2nd ed. ISBN: 978-0123848697
623	*Research Methods for Information Professionals* (fulfills the MSI research methods distribution)	Connaway, Lynn, and Ronald Powell. 2010. *Basic Research Methods for Librarians.* 5th ed. ISBN: 978-1591588658
647	*Information Resources and Services* (LIS)	Bopp, Richard, and Linda C. Smith. 2011. *Reference and Information Services*. 4th ed. ISBN: 978-1591583745
Course #	Course Name/ Specialization	Textbook's Citation
665	*Online Searching and Databases* (LIS)	Markey, Karen. 2015. *Online Searching*. 1st ed. ISBN: 978-1442238855
666	*Organization of Information*	Chan, Lois Mai, and Athena Salaba. 2016. *Cataloging and Classification*. 4th ed. ISBN: 978-1442232495

Finally, faculty maintain their own professional networks where they make contact with practitioners in the field through their research projects, service engagements, committee memberships, activities in professional societies, speaking invitations, speakers whom they invite to their courses, and participation on proposal review panels. These connections link with professional practice and keep them current with respect to changes in the field and the needs of our students' prospective employers.

II.5

Procedures for the continual evaluation of the curriculum are established with input not only from faculty but also representatives from those served. The curriculum is continually evaluated with input not only from faculty, but also representatives from those served including students, employers, alumni, and other constituents. Curricular evaluation is used for ongoing appraisal and to make improvements. Evaluation of the curriculum includes assessment of students' achievements.

(Responses to this standard are split into separate discussions II.5a to II.5c below.)

II.5a

Procedures for the continual evaluation of the curriculum are established with input not only from faculty but also representatives from those served. The curriculum is continually evaluated with input not only from faculty, but also representatives from those served including students, employers, alumni, and other constituents.

The MSI Program is continually evaluated with input coming from faculty, students, staff, employers, alumni, and other constituents. OSA staff regularly collect data about the MSI Program that faculty, staff, and administrators use to gauge its current state of affairs, identify and seek solutions to problems, and plan for the future. Some data are generated from the documentation faculty and staff produce about the MSI Program. Examples are course schedules, course catalogs, and syllabi bearing course descriptions, learning objectives, weekly outlines, reading lists, and graded assignments. Other data emanate from the journeys students take through the MSI Program and the interactions they have with individuals and organizations, some affiliated with the MSI Program such as fellow students, staff, UMSI faculty, U-M faculty generally, and others external to the MSI Program such as alumni, employers, mentors, librarians, archivists, and end users. Table II.16 describes the data that staff collect on a regular basis, the source of the data, collection procedures, and methods of analysis. Indicating how often data are collected are the codes F for fall semester, W for winter semester, Sp for spring semester, S for summer semester, A for annually, and L for less than annually.

Table II.16. Data for the Evaluation of the MSI Program

Description	Source	Collection Procedures	Method of Analysis
Data Generated by Students			
Specializations of graduating MSI students/FWS	Student record in Wolverine Access	Personal choice entered by students into their student record	Quantitative
Demographics of admitted MSI students/A	Student record in Wolverine Access	Personal choice entered by students into their student record	Quantitative
Online degree audit/FWSpS	Student record in Wolverine Access	Personal choice entered by students during registration and grades entered by instructors	Quantitative and qualitative
Examples of student work/FWSpS	Students submit directly to the Seelio portfolio system	Web-based exhibits available on demand	Qualitative
Internship mentee evaluations/FWSpS	Mentee submits evaluation via iTrack	Survey at completion of student internship	Quantitative and qualitative
ASB student evaluations/W	ASB alumni submits evaluation via iTrack	Survey at completion of ASB	Quantitative and qualitative
GIEP student evaluations/S	GIEP alumni submit evaluation via iTrack	Survey at completion of GIEP program	
Course evaluations/ FW	Students fill in evaluation at completion of course	Wolverine Access automatically tabulates ratings and lists responses to open-ended questions	Quantitative and qualitative

Description	Source	Collection Procedures	Method of Analysis
Data about the School Collected by Student Government			
Student survey/A	OSA staff sends email link to current and graduating students with link to survey	Qualtrics-based survey that automatically tabulates ratings and lists responses to open-ended questions	Quantitative and qualitative
Student feedback/ FW	Student fills in the form	Student feedback forms deposited into a dropbox	Qualitative
Town Hall meetings/FW	Students attend student-run town halls	Student government tasks a student to take notes	Qualitative
Ask the Dean meetings/FW	Students organize meetings with the Dean and Associate Deans	Student government tasks a student to take notes	Qualitative
Weekly meetings with OSA/FW	Student representatives attend meetings where OSA staff take notes	Minutes are approved and filed in the UMSI Intranet	Qualitative
Data Generated by Students and Others			
Online degree audit/FWSpS	Student record in Wolverine Access	Course selections entered by students during registration and grades entered by instructors after course completion	Quantitative and qualitative
Advising statistics/ FW	OSA staff take minutes before and after meeting.		
Instructors open their Google calendars to students	OSA staff consolidate minutes using Google sheets and tally instructor appointments from Google calendars	Quantitative and qualitative	
Data Generated by Instructors			
Minutes of MSI Program Committee/FW	OSA staff take minutes	Minutes are approved and filed in the UMSI intranet	Qualitative
Minutes of faculty meetings/FW	UMSI staff take minutes	Minutes are approved and filed in the UMSI intranet	Qualitative
Data Generated by Employers			
Employer surveys/ FW	CDO staff sends email link to employers participating in various UMSI events with link to survey	Qualtrics-based survey that automatically tabulates ratings and lists responses to open-ended questions	Quantitative and qualitative
Employer satisfaction surveys/ FW	CDO staff sends email link to employers of MSI students with link to survey	Qualtrics-based survey that automatically tabulates ratings and lists responses to open-ended questions	Quantitative and qualitative
Data Generated by Mentors in an Employment-like Relationship			
Internship mentee evaluations/FWSpS	Internship mentors submit evaluation via iTrack	Survey at completion of student internship	Quantitative and qualitative
ASB student evaluations/W	ASB mentors/hosts submit evaluation via iTrack	Survey at completion of ASB program	Quantitative and qualitative
GIEP evaluations/S	GIEP mentors/hosts submit evaluation via iTrack	Survey at completion of GIEP program	Quantitative and qualitative

The track for feedback is complex and variable, depending upon analysis results and comparable results across multiple methods. With respect to student data, OSA staff analyze data, review results among themselves, sometimes consolidating and summarizing results for their briefing of the ADAA. Depending on results and their implications for the School, the ADAA shares them with the faculty, LT, DAC, EAB, and/or student government. Faculty are especially adept at pinpointing the nature of the problem and suggesting possible next steps. For example, results may give rise to a broader and deeper investigation of a key component of the MSI Program; (see standard II.1b under "Examining the Specialization Structure…" for such an example) or results may help shape the ADAA's charges to the MSI Program Committee immediately or in the next academic year. In fact, the latter scenario is more likely, that is, the ADAA's charging a standing committee or establishing an ad hoc with action on the implications of the results of one or more data sets including further study that features more data collection and analysis.

Student government gathers but the burden is on the student leadership to bring matters to the LT's attention, whether such matters pertain to a particular faculty member, the culture of the school, its curriculum, or something else. The LT decides how to proceed, possibly, engaging the staff of several units plus one or more standing faculty committees in further investigations, in-depth study, and resolution recommendations.

With respect to course evaluations, the ADAA reads everything including the confidential summary that staff produce that presents quantitative data by course and instructor. Standard III.4 discusses the role of course evaluations in FAR evaluations.

Minutes of faculty meetings and MSI Program Committee meetings are archived on the UMSI intranet and made available to staff and faculty on demand. Typically, standing committees consult meeting minutes of one or more previous years to bring them up to snuff on an issue or see how previous committees handled a comparable issue.

With respect to data generated by employers and mentors, CDO staff analyze data, review results among themselves, sometimes consolidating and summarizing results in their briefing of the ADAA. How the ADAA responds depends on her knowledge of all the data that the MSI Program generates (Table II.16) and input from her sharing data with the faculty, LT, DAC, EAB, and/or student government. Typically, the ADAA charges a standing committee with action in her annual charge to the committee in the next academic year. Regardless of the data that give rise to a situation, the action that the School takes typically goes beyond the MSI curriculum, addressing co-curricular aspects of the MSI Program such the need for leadership training, additional professional skills development, or multicultural competency.

There will be few changes in the process of evaluating the MSI Program when it switches from current to future curriculum. Obviously, the format of certain data sources will change, such as the student record that replaces specialization requirements with mastery course prerequisites and completed mastery courses that replaces completed specializations of graduating MSI students, and more frequent data collection and

analysis activities will be needed to make sure elements of the future curriculum are solid, substantial, and effective. Rising in importance will be the evaluation of the paths students take to mastery courses so that the scheduling of courses in fall and winter does not accidently preclude students from enrolling in their desired mastery, and enrollment in mastery courses so that enough mastery course sections are available to wanting to enroll in them. Also important will be the evaluation of the extent to which these paths overlap career pathways. Tracking them will demonstrate pathways waxing, waning, and holding steady so that faculty can determine which published pathways should be retired, amended, or transformed into a more useful and relevant forms, and it is entirely likely that we will open up pathways to MSI students and alumni so that they can add to them based on their experience and knowledge of the field.

II.5b Curricular evaluation is used for ongoing appraisal and to make improvements.

The MSI Program Committee is specifically responsible for the ongoing appraisal of the MSI curriculum, investigating issues as they arise, examining data that are collected on a continual basis, generating customized data as needed, approving new course proposals, and making incremental and minor curricular changes and improvements. When changes and improvements affect multiple MSI courses, specializations, policies, or the curriculum as a whole, the MSI Program Committee makes a presentation to the UMSI faculty. This is followed by discussion, and, if necessary, voting. Thus, the UMSI faculty as a whole is responsible for the MSI curriculum.

Here is an example of how curricular evaluation is used for ongoing appraisal and results in changes to the program. Several factors came to the forefront in early 2012—the introduction of the School's new undergraduate program, reaching the School's target enrollment of 350 to 400 students, and the considerable amount of administrative overhead and faculty effort that were required to mount and maintain each specialization as a formal academic plan—that were the impetus for the associate dean for academic programs (ADAP) to undertake a study of the master's-level program's specialization structure. The data her study cites to support her recommendations are:

- *Specializations of graduating master's students over a three-year period*
- *Average number of specializations completed plus number/percentage of master's students completing one, two, or three specializations*
- *For students completing more than one specialization, frequently-occurring specialization pairings*
- *Staffing needed to support specializations*
- *Faculty attrition and its effect on specializations*

The ADAP issued a discussion paper to UMSI faculty in advance of a retreat that described the current state of affairs pertaining to specializations and recommended a follow-up study that sought an alternative to the current specialization structure (appendix II.1). At the retreat, faculty talked about the discussion paper at length, speculated on the form that a post-specialization curriculum would take, and agreed in principle to support the follow-up study. Much more than the follow-up study was needed to generate the structure for the future curriculum; however, this example demonstrates how curricular evaluation is used to appraise and improve the MSI Program.

II.5c Evaluation of the curriculum includes assessment of students' achievements.

The evaluation of the curriculum all too often focuses on problems and solving them. An alternative approach to evaluation places a spotlight on students and their achievements and puts them in roles that further UMSI's learning objectives. Here are examples of how MSI student successes help the School achieve its teaching mission.

UMSI employs a set of students to serve as information mentors (http://www.si.umich.edu/mee), sharing the insight, experience, and pride they have developed in the MSI Program with prospective and incoming students. In particular, information mentors assist OSA staff and MSI faculty at prospective and new-student events such as fall orientation (called MORE), fall visiting days for interested students (called "Connect With UMSI"), or "Spring Visiting Days" for admitted students. Additionally, they are a source of useful information for incoming students in a summer pre-orientation web forum where they cover topics such as housing, graduate school transitioning, first-year course suggestions, and information on student life. Peer advising is provided for current students in two ways. The first is through efforts in the student groups to organize materials and provide direct peer advising for students on academic choices. These student leaders are provided training on peer advising and given direct support for knowledge management of their group resources. We are also in the pilot phase of a peer advising program, starting with OSA staff providing deeper training for two MSI students on academic advising and the student experience and then sponsoring their peer advising office hours and group advising sessions by area of interest.

MSI students have available to them a wide array of student groups, some that are linked to professional societies such as student chapters of the American Library Association (ALA) and Society of American Archivists (SAA), others that rally students around a theme, issue, or activity such as the Ann Arbor (A2) Data Dive, Student Organization for Computer Human Interaction (SOCHI), Digital Humanities Collective (DHC), and Michigan Interactive and Social Computing (MISC), and the rest pertaining to the School's degree programs such as SI Master's Association (SIMA), SI Bachelor's Association (SIBA), and Doctoral Student Organization (DSO). Although faculty advisors welcome student inquiries, student members of these groups take the initiative, organizing successful events that draw a mixed audience, e.g., MSI students, U-M students generally, alumni, faculty, U-M librarians, and interested members of the public. Examples of such events are the ALA Chapter's Quasi-Con in January (a free, annual, one-day conference devoted to discussing libraries), MISC's speaker series, A2 Data Dive's boot camps (student-run workshops offering students a chance to learn data processing techniques in advance of the dive), and SOCHI's design jams (where students respond to design problems they elicit from prospective employers).

We trust our students to assist us in making important decisions, inviting the student groups SIMA, SIBA, and DSO to provide the ADAA a list of interested students to serve as members of the MSI Program Committee, BSI Program Committee, and Doctoral Committee, respectively. Other committees and the student groups providing student members are the Diversity Committee (SIMA, SIBA, and DSO), Diversity Planning Group (DSO), Dean Search (DSO) (when applicable), and the ad hoc Grievance Committee (depending on level of student with the grievance). The deans also hold yearly Ask the Deans lunches to get general student input and meet with each leadership team of the main student groups (SIMA, SIBA, and DSO) on an annual basis.

UMSI hosts prospective employers intermittently during the academic year and during Career Fair, held in mid-January, and Networking Fair, held in mid-March. Especially at the Career Fair, employers spotlight their organizations at information booths, hand out literature, collect resumes, and talk with hundreds of enthusiastic students looking for internships and full-time jobs. Some employers participate in the Career Fair's passion pitch session where students strive to perfect how they present themselves based on employers' feedback.

That the same employers return to these events year after year and hire our students is evidence of our students' achievements. Annually, UMSI's Office of Career Development publishes its *Employment Report* (see appendix IV.6), the survey results of recent alumni from all four academic programs about their post-graduation plans and outcomes. Its finding that graduating students average three to four months to find a professional position demonstrates that our MSI students have developed knowledge, skills, and competencies that employers are seeking. Our School's five-year comparative data indicates that salaries have consistently been on the rise, increasing by approximately 20% from 2011 ($55,000) to 2015 ($68,000). In fact, for the past five years UMSI graduates have held the top #1 and #2 salary rankings according to the Library Journal's Annual Salary Report.

Employer surveys and focus groups are rich sources of information about how the MSI Program prepares students for professional work. CDO regularly captures employer satisfaction and feedback through internship evaluations/surveys to mentors who hire and mentor UMSI student interns every semester. Additionally, CDO sends a broader employer satisfaction survey every few years to employers who actively recruit and hire UMSI students. These surveys are designed to collect and assess employers' satisfaction with UMSI students' skills, competencies, career readiness and overall work performance.

Employers have given strong indications that their organizational needs are met through the MSI professional program. Of the 247 internship mentors surveyed from 2015-2016 academic year, 100% reported the UMSI intern they had employed had made a valuable contribution to their organization. In rating the quality of work performed, 91.7% indicated the quality of the intern's work was very good or outstanding, and 100% indicated they would mentor a UMSI student again.

In 2016, some 60 employers of MSI graduates were surveyed about MSI students vis-à-vis MSI program objectives. Standard IV.1b details results. Featured here are employer comments:

> *"These students are leaders in understanding the complex landscape of libraries, archives, and digital asset management."*

> *"MSI students are very prepared to work in the digital realm."*

> *"My years of recruiting MSI grads has resulted in tremendous value and impact on our organizational needs. Keep up the good work!"*

> *"I will continue to hire interns and permanent hires from MSI!"*

> *"MSI students are smart. They know how to bring what they are learning in the classroom and apply them in a professional work setting very well."*

UMSI's ExpoSItion is a formal venue for students to show off their information projects. Projects are not limited to classroom assignments but may be inspired by PEP internships, Entrepreneurship Program, GIEP, Michigan Makers, independent study, CID, and the School's many other special programs and co-curricular activities. The most recent ExpoSItion was held in the spacious Michigan League Ballroom in mid-March 2016 where almost six dozen students were on hand to showcase a total of 31 projects. Held on the same day as Networking Fair and Visiting Days, ExpoSItion is able to attract several of the School's stakeholders—prospective employers, prospective students, current students, alumni, and faculty—to celebrate student achievements. ExpoSItion projects are divided into four categories: (1) Academic/Research, (2) Civic Tech, (3) Diversity, Equity, and Inclusion, and (4) Technology/Design. Yahoo! Labs and Coyote Logistics sponsored the 2016 event, providing cash prize awards to the most popular projects in each category. Examples of 2016 ExpoSItion projects are:

- *Cognitive Mapping of the U-M Libraries.* The team of Kathy Kosinski and U-M librarians recruited library users from Hatcher and Shapiro libraries and asked them to draw a map of the library they were in. From this they learned user perspectives of these libraries in terms of layout, navigation, and terminology. U-M librarians are taking this knowledge to develop future studies and to roll out design changes through signage and renovations that will help create more user-centered libraries that are easy for users to navigate.

- *Using Spatial Analysis to Position Little Free Libraries (LFLs).* The team of Christina Czuhajewski, Fiona Potter, and Alexa Hagan enlisted geospatial analysis to inform the positioning of Little Free Libraries in potentially high-use urban areas. Pilot testing their approach in Kalamazoo, Michigan, the team documented their efforts so that other communities can use them to target high-use areas for locating libraries, LFLs, community informatics centers, and municipal services.

- *HUB: Connecting Cyclists with Local Government to Improve Cycling Safety.* MSI student Jessamine Barley-Matthews observed that bicycle lanes across the U.S. are often riddled with potholes, forcing cyclists into the lane of traffic and endangering their safety. Her solution to this problem is "HUB," a mobile app and Bluetooth-enabled glove that connects bicyclists with local government to make city streets safer for everyone. The app tracks bicyclists' routes to generate a heat map of road usage over time, while the bluetooth-enabled glove allows bicyclists to add data to the map without their hands ever leaving the handlebars. The data bicyclists generate will help city officials make informed decisions on where to place bicycle infrastructure, well as help cyclists plan safer routes to their destinations.

- *BeloDoc.* The team of Nicoloe Ulgado, Kaipeng Yu, and Yueran Zhao began BeloDoc as a UXDC project, providing a small start-up firm with usability recommendations for its website and mobile app. Focus groups and A/B testing revealed mismatches between the current website and customer expectations and potential approaches to bridge the gaps. The team followed up with mockups and prototypes that laid the foundation for branding and subsequent product evaluations.

- *Breadcrumbs Nature Guide.* MSI student Dalton Simancek developed Breadcrumbs, a mobile application that communicates with Bluetooth-powered beacons scattered along Dahlem Nature Center's trail and enables vision-impaired and blind hikers an experience comparable to what sighted hikers learn along the trail. Users simply open the application, adjust the volume, and encounter the many navigational and contextual audio cues emitted by individual beacon devices placed along the trail.

Last but not least, we celebrate here the achievements of selected alumni who have achieved leadership roles in the profession:

Celeste Choate, Director, Urbana (Ill.) Free Library

Elaine Didier, Director, Gerald R. Ford Presidential Library

Thomas Hyry, Florence Fearrington Librarian of Houghton Library and Director of Arts and Special Collections, Harvard University

Josie Parker, Director, Ann Arbor District Library

John F. Szabo, City Librarian, Los Angeles Public Library

II.6 The program has explicit, documented evidence of its ongoing decision-making processes and the data to substantiate the evaluation of the curriculum.

The MSI Program Committee documents evidence of its ongoing decision-making processes and maintains data to substantiate its ongoing management and evaluation of the curriculum. Besides MSI faculty and MSI student members, the School's ADAA appoints a staff member to handle the administrative overhead connected with Committee business such as taking notes, collecting relevant documentation, assisting with data collection and analyses, digitizing documentation when necessary, maintaining a calendar, making copies, and filing documentation online into an online project site that is accessible to all committee members including the ADAA. Both the Curriculum Committee (precursor to the current MSI Program Committee) and the short-lived MSI Curriculum Revision Task Force enlisted this same approach, that is, using a collaborative online site to store a digital trail of their decision-making processes and collected data and analyses that played a role in those processes.

The UMSI's Office of Student Affairs (OSA) and the Career Development Office (CDO) collect data on a regular basis pertaining to students and their progress through the MSI Program as well as on alumni, employers, internship supervisors, UMSI faculty, and UMSI External Advisory Board members. Data are stored on a drive in the UMSI's Intranet and only accessible to such staff; however, when UMSI faculty are engaged in serious tasks that pertain to the teaching, research, and service missions of the School, UMSI staff from these offices provide faculty with the data they need to complete the task.

Additionally, such MSI staff use collected data to produce published reports such as *Employment Report*, survey results of recent alumni from all four academic programs about their post-graduation plans and outcomes; *UMSI Internships*, survey results of

current students from all four academic programs about their internship demographics; and the annual UMSI State of the School Address, a public presentation by UMSI's dean on all areas of the School including enrollment, new initiatives, research, and trends. Staff also provide internal reports on enrollment, student characteristics data, financial aid, advising, PEP internships, engaged learning, and the student experience generally to administration, the MSI Program Committee, and in some instances to the UMSI faculty during monthly meetings or occasional faculty retreats.

Table II.16 enumerates the wide variety of data UMSI staff collect and make available to MSI faculty and administrators on demand. Standard II.5b describes an example of how the data staff collect on MSI students is used to appraise and improve the MSI Program.

II.7 The program demonstrates how the results of the evaluation of the curriculum are systematically used to improve the program and to plan for the future.

Regularly scheduled MSI Program Committee meetings, faculty meetings, and occasional retreats ensure that the evaluation of the MSI curriculum is performed continuously and judiciously. The MSI Program Committee has the responsibility for the bulk of curriculum matters involving faculty who propose new courses, submit proposals bearing major changes and improvements to existing courses, and respond to specializations that are subject to three-year reviews.

Setting the theme and priorities for the MSI Program Committee's business is the charge that the ADAA issues to the new Committee at the beginning of each academic year. Since fall 2012, the charge has supported a massive curriculum reform effort that the ADAP (the current ADAA's predecessor) initiated based on her spring 2012 working report's data and analyses that demonstrated the inefficiencies of the MSI Program's specialization structure (see appendix II.1). In a presentation to the UMSI faculty in early 2013, the MSI Program Committee stated these goals for the future curriculum: (1) providing students with more career options than specializations, (2) encouraging more synergy in existing areas of strength, (3) supporting the development of advanced knowledge, skills, and experience, and (4) increasing the ability to adapt the curriculum to changes in the environment. In early 2014, the MSI Program Committee briefed UMSI faculty on the future curriculum, assuring them of its faithfulness to these goals while shifting the orientation from specializations to a new structure that would allow students to progress from acquiring basic skills and core competencies to mastery of knowledge, skills, techniques, and values necessary for their chosen professional career (see appendix II.8).

The following year, the short-lived MSI Curriculum Task Force unveiled the future curriculum's mastery-based structure in a proposal that was based on thorough analysis of information and data about the composition of and changes in the student population, student experiences, job placements, employment trends, and employer requirements and expectations of entry-level professional positions (see appendix II.2).

In the 2015-2016 academic year, MSI faculty proposed seven mastery courses for the future curriculum. To facilitate mastery course development, the MSI Program Committee sponsored two working sessions in March 2016 for mastery-course instructors, teaming them up with UMSI faculty in related and allied disciplines, and giving them exercises that enabled them to make progress on their mastery course proposals with respect to relevant careers, prerequisite knowledge and skills,

recommended courses, and the knowledge and skills students are able to demonstrate as a result of their mastery-course experience. Five of the seven mastery courses (CT, IPI, DSC, SUE, and BDA) will be pilot-tested in the 2016-2017 academic year by the current curriculum's second-year students. By winter 2018, seven to 10 mastery courses will be pilot tested by second-year students in the current curriculum. All MSI students entering in the 2017-2018 academic year will be subject to the future mastery-based curriculum. By then, UMSI faculty will have formulated a wide range of possible career outcomes, giving students' guidance on taking relevant electives that solidifies their preparation for careers of interest.

When the future curriculum is fully operational in the 2017-2018 academic year, the MSI Program Committee will turn its attention to program monitoring such as checking student enrollment in mastery courses, comparing each mastery course's published professional jobs with the jobs its graduates actually obtain, surveying recent graduates about the mastery-based curriculum's strengths, weaknesses, gaps, and interviewing employers about student preparedness for professional work.

Standard III

Standard III FACULTY

University of Michigan Faculty

The University of Michigan (U-M) classifies faculty into five different appointment types to accommodate the diverse needs of its schools and colleges. UMSI faculty appointments run the gamut, capable of being one of the five different appointment types:

1. *Tenured/tenure-track faculty*. This is the typical appointment for full-time teaching faculty at UMSI. Faculty appointed in this group are expected to engage in teaching, research, and service, and there are three ranks in this category: professor, associate professor, and assistant professor. UMSI has 42 faculty in this category.
2. *Clinical faculty*. These appointments are awarded to individuals who have distinguished themselves in a certain area of practice and who have superior teaching skills. These individuals are considered part of the core instructional faculty and participate in teaching, research, and service. UMSI has six faculty in this category.
3. *Research faculty*. Research faculty appointments are made at the assistant, associate, or full professor level. Research faculty are non-tenure-track positions, and research is their primary responsibility. Research positions typically assume some responsibilities similar to those of tenure-track faculty, such as service, for example, serving on the MSI Program Committee or Doctoral Committee. Occasionally, research faculty teach in one of UMSI's four programs. UMSI has two faculty in this category.
4. *Lecturers*. Lecturers are non-tenure-track teaching faculty. They are selected on the basis of their professional expertise or knowledge in a given field. Some lecturers are full time, appointed at the lecturer III and IV levels. We consider our lecturers III and IV as part of the core instructional faculty and expect them to participate in service activities for the School and the U-M. UMSI has two faculty in this category. Individuals appointed at the lecturer I and lecturer II levels only teach and have no service responsibility. The majority of UMSI's lecturers are appointed at the lecturer I level and they teach a single course a term. These individuals may also be referred to as adjuncts or intermittents. Lecturers at all levels come under the rules of the Lecturers' Employee Organization (LEO) Union. (For the full LEO contract, see https://hr.umich.edu/sites/default/files/LEO-Contract.pdf.) UMSI has 14 faculty in this category, although this varies considerably from term to term.

5. *Visiting faculty*. Visiting faculty may assume some temporary teaching and/or research responsibility on-site at the U-M, and they are appointed at the assistant, associate, or full professor levels, depending on their qualifications and previous experience. UMSI currently has no faculty in this category.

Although the tenured/tenure-track category accounts for the vast majority of UMSI faculty, each category contributes to the mission of the School. The University of Michigan Faculty Handbook (https://www.provost.umich.edu/faculty/handbook/index.html) provides additional details concerning the nature and regulations governing each of these five teaching appointment categories.

UMSI does not have School-wide bylaws, but faculty govern through a set of policies (voted upon by the governing faculty) and procedures outlined in the UMSI Faculty Handbook (https://sites.google.com/a/umich.edu/umsi-policies/?pli=1). At UMSI, the governing faculty consists of all tenured, tenure-track, and research professorial faculty in the School as well as those tenured or tenure-track faculty at the University of Michigan whose appointment in the School reflects 50% or greater effort. Upon request by the individual, governing faculty may vote to grant governing status to individuals in other ranks, including lecturers, clinical professors, and associate or full research scientists. UMSI has faculty governance; faculty lead the School (dean and associate deans, directors of the four academic programs, and lead the other standing committees (search and diversity). Faculty vote on all major curriculum changes, hiring and promotion of faculty in all tracks and at all ranks, and have input into the strategic direction of the School through the regular monthly faculty meetings and the Dean's Advisory Committee (DAC).

UMSI Focus Areas and Faculty

UMSI faculty have embraced three focus areas (originally described in standard I.1.2) in different ways: (1) engaged learning, (2) diversity, equity, and inclusion, and (3) MSI curriculum reform. Here is how UMSI faculty engage in these areas through teaching, research, and service.

Engaged Learning, Global Learning, and Entrepreneurship

In terms of engaged learning, faculty have designed courses with a client-based or interactive component featuring real-world systems or people. For example and as noted in standards II.1c and II.2b, the foundations course *Contextual Inquiry and Consulting Foundations* (501) requires students to work with clients as they begin their professional degree. These additional examples feature faculty who have received funding to design new courses and co-curricular engaged learning opportunities for students from the U-M's highly competitive internal grant program, Teaching and Learning in the Third Century (TLTC), aimed at enhancing the student experience:

- Associate Professor *Cliff Lampe* developed *Citizen Interaction Design* (CID), a novel approach to learning that partners local governments with teams of U-M students, and together, they develop new information tools that help foster citizen engagement. CID is unique because it is built on multi-year commitments between UMSI and Michigan communities. It also engages students to consider tool sustainability, handing off projects to local teams and making sure they have the technical skills and deep understanding to maintain and enhance projects beyond the initial development phase.

- Professor *Barry Fishman* conceived the *Gameful Assessment in Michigan Education* (GAME), a game-based learning approach supported by the GradeCraft tool that Fishman designed. GradeCraft allows students to personalize their course experience and pursue numerous pathways through courses by choosing the assignments that most interest and challenge them. GradeCraft's Grade Predictor helps students see how they can reach their course goals and features teacher modules that enable instructors to follow and support student progress.

- Clinical Associate Professor *Kristin Fontichiaro* benefited from grants from the UMSI's Founders Fund to support *Michigan Makers*, developing two after-school maker spaces, one at Ypsilanti Community Middle School and the other at Ann Arbor's Mitchell Elementary School. MSI student mentors intern in these schools, creating a culture of "making" in both digital and physical spaces. MSI student mentors create curriculum plans featuring diverse activities from which the middle schoolers can select, ranging from multimedia production to circuitry to sewing. Through MSI student mentor blogs, conversations, reflective journals, and documentary photos and videos, Fontichiaro has learned a substantial amount about strategies for effectively organizing productive maker communities; supporting student mentors; creating informal, self-directed learning and creative processes; and production. Based on this pilot work, Fontichiaro was awarded an Institute for Museum and Library Services (IMLS) grant to bring the maker movement to rural and underfunded libraries and school districts around the state of Michigan.

- Under the auspices of UMSI's Entrepreneurship Program, *Nancy Benovich Gilby* initiated the *UX Design Clinic* (UXDC) which provides user experience and user interface design, social media, and website development consultation to U-M students, U-M units, and local non-profit organizations. Teams of beginning and advanced students offer services to clients and actively mentor each other. Students on UXDC teams typically come from different UMSI specializations so that team members hear from, consider, and respond to a wider range of perspectives than would result if limiting team membership to one specialization.

Other sources of funding support our faculty's efforts to introduce innovative engaged learning into the classroom and beyond.

- Clinical Associate Professor *David Wallace* received a National Endowment for the Humanities grant for his *Preservation Access and Virtual Education Laboratory* (PAVEL), a virtual laboratory featuring digital access systems and preservation tools. These tools have been integrated into a variety of MSI courses to educate students enrolled in UMSI's Preservation of Information (PI) and Archives and Records Management (ARM) specializations.

- Assistant Professor *Joyojeet Pal* was awarded special funds from the U-M Provost for the *Global Information Engagement Program* (GIEP). Since 2014, UMSI students have proposed GIEP projects that have positive societal impact along with implementation plans, then followed up with an in-country visit, implementing and handing off their projects to local maintenance teams. See standards II.1c and II.2.4 for more information about GIEP.

GIEP was UMSI's initial test of the essential elements of an international engagement program. Ramping up slowly and deliberately, UMSI faculty and staff have worked closely

with related and allied U-M services, such as the International Center and the Office of the Provost through the Vice Provost for Global and Engaged Education, to design a co-curricular activity that best meets the needs of MSI students and provides them with all the necessary ingredients for achieving the program's learning goals.

Diversity, Equity, and Inclusion

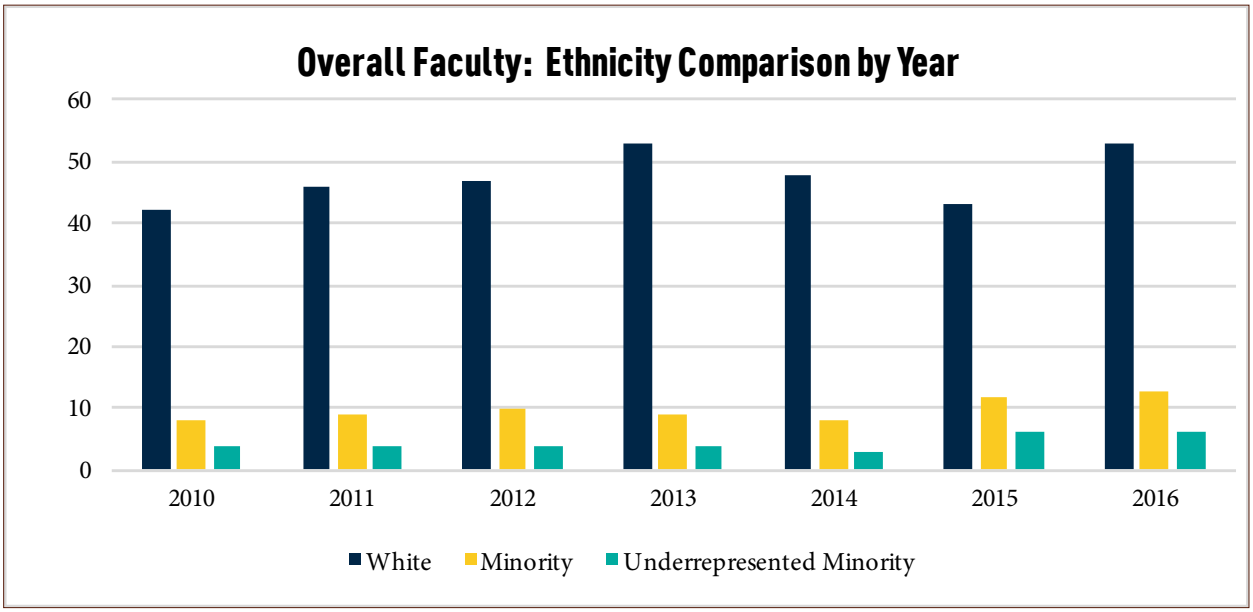
Diversity, equity, and inclusion are important values that play a crucial role in how UMSI faculty approach teaching, research, and service. Standard I.1.2 describes the leading role that UMSI played in the University-wide diversity, equity, and inclusion planning process in the 2015-2016 academic year. Yet, UMSI faculty have been working to foster a more diverse, equitable, and inclusive environment for some time. Since the 2013-2014 academic year, UMSI faculty have reported individual annual diversity-related goals as part of their faculty annual review (FAR). In the review, faculty assess how well they achieved their previous year's goals and set a new ones for the coming year. An analysis of these goals reveals that they divide fairly evenly between teaching and research activities pertaining to the social good or underserved communities. Because individual goals are not shared, faculty don't know whether their goals closely align with their colleagues' goals so that they can build bridges and work together to implement imaginative and innovative solutions. In the 2016-2017 academic year, we have compiled all diversity-related goals reported on FARs and distributed them to faculty so they can connect and work together.

Diversity, equity, and inclusion also drive our planning around faculty recruitment and development activities as well as the research agendas for some faculty. Based on our planning efforts described in standard I.4, we have focused goals in three areas: recruiting and retaining a diverse faculty, inclusive teaching, and research for the social good.

Recruiting a Diverse Faculty is Difficult

Recruiting a more diverse faculty is a School-level goal and one for which we are constantly striving. In standard III.3, we discuss our recruiting efforts to create greater diversity in the faculty. In terms of retention, we work to make UMSI an equitable and inclusive environment. Figure III.1 shows the trends for minority groups on the faculty. In spite of significant efforts, we have not increased diversity of the faculty substantially. Over the period of the self-study, we have increased the number of minority faculty by over 50%, moving from eight to 13 faculty. The number of underrepresented minority faculty has increased overall from four to six; however, the distribution among full-time tenure track and part-time faculty has changed. In 2010, two underrepresented minorities were part-time and two full-time faculty; in 2016, five were full-time tenure track faculty and one was part-time faculty. Figure III.1 demonstrates the growing number of minority faculty members compared to other faculty members. Diverse faculty recruitment is a goal in our Diversity Strategic Plan (see also standard I.1.2 and appendix I.5).

Figure III.1. Overall Diversity Trends 2010 - 2016



Inclusive Teaching is Important to UMSI Faculty

Building on an all-faculty workshop on inclusive teaching in the 2014-2015 academic year, the UMSI Diversity Committee enlisted CRLT experts to design and facilitate a next level workshop for faculty which was held in January 2016. This workshop engaged a dozen faculty in a course-specific, peer-to-peer discussion and strategy-building session. This year's centrally sponsored faculty development activities around inclusive teaching will be led by faculty goals as stated in their faculty annual review (FAR) documentation described in standard I.1.2 and I.3.

Research for the Social Good

In keeping with the UMSI mission statement's promise to build a better world, many UMSI faculty conduct research in or create technologies or educational packages for underserved communities. Examples are:

- Associate Professors *Kevyn Collins-Thompson* and *Soo Young Rieh* are collaborating on the pilot study *Guided Interaction for Searching as Learning* (GISELE) that places a spotlight on searching, not just for finding information, but for learning more about the topics that interest people. Their work has appeared in the ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR 2016).
- Clinical Associate Professor *Kristin Fontichiaro* received funds from IMLS for her grant proposal, *Supporting Librarians in Adding Data Literacy Skills to Information Literacy Instruction*. The impetus for her research was the realization that students are either making poor decisions about the quality of statistics, data, and related visualizations, or that they lack the ability to comprehend these resources altogether. Her goal is to build students' capacity as thoughtful, active citizens by training librarians in critical and essential aspects of data literacy, engaging them in high-leverage, practical instructional strategies, and challenging them to use these strategies to impact students' data literacy capabilities. Project outcomes include the development of webinars on data literacy, professional development modules drawn from archived webinars, conferences, and case studies, and a data literacy handbook

to be published online. Rural and underserved communities in Michigan are the population targeted in this project.

- Assistant Professor *Tawanna Dillahunt* leads the *Social Innovation Group*, an interdisciplinary team of individuals who specialize in the research and development of ubiquitous and social computing technologies. Their vision—to design, build, and enhance innovative technologies to solve real-world problems—is manifest in their current projects that address unemployment, environmental sustainability, and technical literacy by fostering socio-technical capital within these communities.
- An interdisciplinary team led by Professor *Yan Chen* (economics) and Associate Professor *Qiaozhu Mei* (information retrieval) studies lender behavior in the online Kiva microlending site. Kiva matches citizen lenders with low-income entrepreneurs in underserved areas around the world. Their most recent research demonstrates that lenders who join lending teams invest in significantly more loans than lenders acting alone.

MSI Curriculum Reform

The redesign of the MSI curriculum is based on several key principles: engaged learning, staging the curriculum so that students' academic plans allow for greater depth of knowledge and skills, and a focus on career outcomes. Currently, the MSI Program Committee leads the reform efforts, calling on faculty to develop new mastery courses and rationalizing paths toward the mastery courses using course mapping techniques. Faculty have responded, submitting mastery-course proposals (seven in the first round and five in the second round). Mastery-course proposers and MSI Program Committee members were joined by three to four like-minded faculty and participated in a quarter-day workshop led by senior staff from the U-M's Center for Research on Learning and Teaching (CRLT) to expand on the original proposals and refine potential pathways leading to these mastery courses. Another group of faculty, with expertise in several areas such as human-computer interaction, information analysis and retrieval, archives, and library science, banded together to review the MSI curriculum's technology skills offerings with the objective of redesigning these courses to better align with the MSI Program Committee's work. Throughout the curriculum reform process, faculty engagement has been high: faculty gathered in May 2015 for a half-day retreat on curriculum reform, in the 2015-2016 academic year faculty worked on curriculum reform in several extended faculty meetings, and individual faculty have had one-on-one meetings with MSI Program Committee members to discuss different aspects of the plan or various mastery course proposals. In December 2016 and January 2017, UMSI faculty were asked for review of and feedback on different aspects of MSI curriculum reform:

- *Step 1.* Read the definition of mastery courses and short descriptions for each mastery course.
- *Step 2.* Take a look at the list of 12 mastery courses with a set of required courses and recommended courses.
- *Step 3.* Review the mapping of current MSI courses and 12 mastery courses and check if you think that your course should be counted either as a required course or a recommended course.
- *Step 4.* Take a look at the list of 26 career pathways with a set of recommended and elective courses.

- *Step 5.* Review mapping of current MSI courses and 26 career pathways and check if you think your courses need to be included for one or multiple career pathways.

Response to this exercise was good. Generally, faculty engagement centered on curriculum reform is high, and faculty have a positive attitude about the reform. Standard II.1b provides full details on MSI curriculum reform.

III.1

The program has a faculty capable of accomplishing program objectives. Full-time faculty members (tenured/tenure-track and non-tenure-track) are qualified for appointment to the graduate faculty within the parent institution. The full-time faculty are sufficient in number and in diversity of specialties to carry out the major share of the teaching, research, and service activities required for the program, wherever and however delivered. Part-time faculty, when appointed, balance and complement the competencies of the full-time tenured/tenure-track and non-tenure-track faculty and are integral to the program. Particularly in the teaching of specialties that are not represented in the expertise of the full-time faculty, part-time faculty enrich the quality and diversity of the program.

(Responses to this standard are split into separate discussions III.1a to III.1e below.)

III.1a

The program has a faculty capable of accomplishing program objectives. Full-time faculty members (tenured/tenure-track and non-tenure track) are qualified for appointment to the graduate faculty within the parent institution.

The University of Michigan and UMSI have high standards for faculty in all appointment types. These expectations are detailed in the University of Michigan (UM) Faculty Handbook (see http://www.provost.umich.edu/faculty/handbook/5/5.B.html) and in the School of Information Faculty Handbook (https://sites.google.com/a/umich.edu/umsi-policies/).

All new tenure-, clinical-, and research-track promotion recommendations are reviewed in this order: UMSI tenured faculty, UMSI dean, U-M provost, and U-M Regents. At UMSI, tenure-track faculty at the assistant professor level being considered for appointment are required to possess a PhD in a relevant field, a commitment to working in an interdisciplinary environment that includes a large professional education component, and the potential for excellence in teaching and research. Clinical faculty and lecturers must possess appropriate educational qualifications, demonstrated expertise in a specific area, and superior teaching skills. They must also hold an advanced degree (master's or doctorate) in an area of relevance to the School. The diverse qualifications of our faculty are apparent in the curricula vitae of the tenure-, clinical-, and research-track faculty which appear as appendix III.1.

Over the past seven years, we have been in an aggressive hiring mode due to the expansion of UMSI's degree programs and our desire to maintain the well-entrenched excellence of our flagship MSI Program during the expansion. Since 2010, we have hired 22 tenure-track faculty, recruiting them from top universities such as Carnegie Mellon, MIT, Northwestern, University of California, Berkeley, University of Southern California, University of Washington, and Yale University. We have also hired two full-time lecturers, Elena Godin and Colleen Van Lent, who add expertise to our faculty in the areas of graphic design and computer programming and web design, respectively, and one full-time clinical professor, Kristin Fontichiaro.

In the 2010 External Review Panel report, the panelists identified the recruitment of faculty and a commitment to maintain a strong library and information science (LIS) specialty as an issue. Since that time we have hired several faculty to specifically address this issue. These faculty include:

- *Kristin Fontichiaro, Clinical Associate Professor*. In the 2010 self-study, Fontichiaro was listed as an adjunct lecturer. We hired her as a full-time Clinical Assistant Professor in September 1, 2010 and she was promoted to Clinical Associate Professor as of September 1, 2016. Fontichiaro was formerly K-5 Media Specialist in the Birmingham (Michigan) Public Schools, and she was hired to direct our School Library Media (SLM) program. Due to cuts in Michigan state education funding, school library media positions have been substantially reduced. Fontichiaro has switched her focus to literacy issues and is becoming more engaged with public libraries through research on maker spaces and data literacy. She teaches a variety of courses in the LIS area including I*nformation Literacy for Teaching and Learning* (641), *Professional Practices in Libraries and Information Centers* (643), and *Information Resources and Services* (647).

- *Carl Lagoze, Associate Professor*. Lagoze has made a substantial impact on development of digital libraries through such critical technologies as the Open Archive Initiative-Protocol for Metadata Harvesting (OAI-PMH) which enables people to search across digital library platforms and to exchange data between platforms; Open Archive Initiative-Object Reuse and Exchange (OAI-ORE), a semantic model for exchanging complex objects between producers, repositories, and consumers; and Flexible Extensible Digital Object Repository Architecture (Fedora), an open source set of tools to manage digital content) which has over 350 installations worldwide. His research also influenced other major digital library initiatives, such as the Dublin Core Metadata Framework and the arXiv platform for electronic preprints in physics. Lagoze's current research centers on digital information and the infrastructures that maintain, organize, and disseminate digital information. He has added strength to our digital library and metadata offerings, successfully proposing and offering the courses *Digital Libraries and Archives* (640) and *Semantics-Based Knowledge Descriptions and Access* (570).

- *Sile O'Modhrain, Associate Professor*. O'Modhrain is jointly appointed in UMSI and the U-M School of Music, Theatre & Dance. Her research focuses on haptics. Her current research on digital Braille displays could reinvigorate the use of Braille and revolutionize how visually-impaired people access digital information. An advocate for accessible computer systems on the U-M campus, she was recently awarded the James T. Neubacher Certificate of Recognition from the U-M Council on Disability Concerns. O'Modhrain teaches *Engineering Applications of Media Technology* (515) in both UMSI and the School of Music, Theatre & Dance.

- *Kentaro Toyama, W. K. Kellogg Associate Professor of Community Information*, comes to UMSI by way of Microsoft Research India where he was both co-founder and assistant managing director. Toyama is one of the leaders of the information and communication technologies for development (ICT4D) movement and his research focuses on using technology to enhance the educational and economic outcomes for individuals in impoverished areas. While most of his previous work was in India, since joining the UMSI faculty he has expanded his research into Detroit. He is also studying the impact of public libraries in the United States. Toyama teaches

the foundations course *Contextual Design and Consulting Foundations* (501) in the current MSI Program.

In addition, other faculty hired since 2010 contribute to the traditional LIS research and curriculum areas. For example, *Finn Brunton* taught a course on dead media; *Julia Adler-Milstein* and *Casey Pierce* both study medical information, recordkeeping systems, and health information policy and ethics; *Lionel Robert* teaches the management course in which most LIS specializers enroll; *Kevyn Collins-Thompson* examines literacy issues and information search, and teaches a course in data manipulation that is popular with LIS students; both *Ceren Budak* and *Daniel Romero* conduct research in information analysis and retrieval; and *Sarita Yardi Schoenebeck* and *Christian Sandvig* study information ethics and policy in digital systems. Table III.1 lists new tenure-track faculty hires from 2011 to 2016.

Table III.1. New Tenure-Track Faculty Hires from September 1, 2010 to May 31, 2016

Faculty	Date Hired	Status (as of May 31, 2016)
Joyojeet Pal	1/1/2011	Assistant Professor
Julia Adler-Milstein	9/1/2011	Assistant Professor
Finn Brunton	9/1/2011	Resigned
Charles Friedman	9/1/2011	Professor (transferred to the Medical School)
Cliff Lampe	9/1/2011	Associate Professor
Lionel Robert	9/1/2011	Assistant Professor
Predrag Klasnja	9/1/2012	On leave
Carl Lagoze	9/1/2012	Associate Professor
Christian Sandvig	9/1/2012	Associate Professor
Sarita Yardi Schoenebeck	9/1/2012	Assistant Professor
Tawanna Dillahunt	1/1/2013	Assistant Professor
Nicole Ellison	1/1/2013	Professor
Kevyn Collins-Thompson	9/1/2013	Associate Professor
Markus Mobius	9/1/2013	Associate Professor
Tanya Rosenblat	9/1/2013	Associate Professor
Katharina Reinecke	1/1/2014	Resigned
Daniel Romero	1/1/2014	Assistant Professor
Sile O'Modhrain	9/1/2014	Associate Professor
Silvia Lindtner	9/1/2014	Assistant Professor
Kentaro Toyama	9/1/2014	Associate Professor
Casey Pierce	9/1/2015	Assistant Professor
Ceren Budak	11/16/2015	Assistant Professor

III.1b Full-time faculty are sufficient in number.

Table III.2 summarizes faculty appointments measured by appointment type, headcount, and effort (FTE). As of May 31, 2016, UMSI consists of 66 faculty whose effort is equivalent to 47.38 FTE.

Table III.2. Faculty Appointments, Headcount, and Effort

Appointment Type	Headcount	Effort (FTE)
Tenured/Tenure-Track Faculty	42	35.45
Professor	17	11.45
Associate	14	13.0
Assistant	11	11.0
Clinical Faculty	6	4.5
Research Professors	2	2.0
Lecturers III/IVs	2	2.0
Adjunct Lecturers	14	3.43
Visiting Faculty	0	NA
Total	66	47.38

Within the tenure-track faculty, 74% are tenured faculty and 26% untenured; 58% are male and 42% are female.

III.1c The full-time faculty are sufficient...in diversity of specialties.

Faculty possess a wide range of knowledge, expertise, and professional experience that enriches the many aspects of the MSI Program. This is demonstrated through their academic specialties, cross-disciplinary appointments, and professional expertise. We discuss this more fully in standard III.6 and have included a list of all faculty with their degrees as appendix III.2.

III.1d The full-time faculty...carry out the major share of teaching.

UMSI has 61 (41.95 FTE) core instructional faculty (i.e., tenure and clinical track faculty and lecturers III and IV) who are responsible for an overwhelming amount of the instructional effort. This number is less than the full 66 reported previously as two members are research faculty who do not teach; two of the tenured faculty hold higher university administrative positions, including James Hilton, Dean of Libraries/Vice-Provost for Academic Innovation, respectively; Charles Friedman is now Chair of the Department of Learning Health Sciences in the U-M Medical School.

UMSI faculty expect to teach across all of our four programs. This enables teaching assignments to be more flexible to best meet the needs of each program. For the MSI Program, this means that faculty can teach courses across the specializations and will be able to prepare students for multiple mastery courses. Thus, MSI students can potentially be exposed to a wide range of UMSI faculty. appendix III.3 lists faculty teaching assignments in the MSI Program for all tenure and clinical track faculty and lecturers III and IV from the 2010-2011 to the 2015-2016 academic years.

Although UMSI faculty advise students across all programs, the bulk of their advising is devoted to students in the MSI Program. Students are also advised by staff in the Office of Student Affairs (OSA) as well as by peer-advisors (generally other students pursuing the

same specialization). Students are not assigned a particular faculty advisor; they are free to make an appointment with the faculty member(s) of their choosing for career advice. During the key advising time to sign up for classes, faculty advisors open up appointment slots on their Google calendars so that students can sign up to consult with faculty members. Advising loads vary widely; some faculty advise many students and others only a few. Although OSA encourages all students to seek advice from a faculty member, not all do. Conversely, some seek the advice of multiple faculty. This system enables students to get multiple perspectives on courses and career paths.

III.1e Part-time faculty, when appointed, balance and complement the competencies of the full-time tenured/tenure-track and non-tenure-track faculty and are integral to the program. Particularly in the teaching of specialties that are not represented in the expertise of the full-time faculty, part-time faculty enrich the quality and diversity of the program.

Part-time lecturers are an essential part of our faculty. The 2015-2016 academic year provides a typical sample of our part-time lecturer population. We had 14 lecturers, some of whom have taught for us for many years. We draw lecturers from other units on campus, such as the University Library, the Bentley Historical Library, and Medical Center Information Technology as well as from the local community. They provide specialized expertise and professional knowledge, as many are practicing professionals. Appendix III.4 contains the curricula vitae of the part-time lecturer cohort for the 2015-2016 academic year. Appendix III.5 is a list of all our part-time lecturers from September 2010 to May 2016, the courses they have taught, and their primary employer. Here are examples of our lecturers, their areas of expertise, and the courses they teach:

- *Graham Hukill* is the *Digital Publishing Librarian* at Wayne State University where he manages the University's digital library and assists other librarians in selecting collections for digitization. Previously, he worked for the Internet Archive's Archive-It, a web-archiving subscription service for libraries. Hukill has an MSI from UMSI, specializing in Archives and Records Management. He teaches *Access Systems for Archival Materials* (629).
- *Dan Klyn* is *Information Architect* and *Co-Founder* of The Understanding Group (TUG) which offers information architecture design, user experience assessment, user experience research, and workshops. Klyn is currently president of the Information Architecture Institute. He teaches *Information Architecture* (658).
- *Tonya McCarley* is the *Lead User Experience Designer* at ProQuest. Previously, she worked at the Reed Law Firm, ITHAKA, and Agile doing user experience design. McCarley received her MSI degree from UMSI, specializing in human-computer interaction. She teaches *Introduction to Interaction Design* (582).
- *Shannon Zachary* is *Head, Preservation and Conservation*, at the University of Michigan Library and has been a UMSI lecturer since 2006. She holds a City and Guilds of London Institute Certificate in Bookbinding and a Higher National Diploma in paper conservation from Camberwell College of Art in London as well as an MSI from UMSI. She teaches *Preservation Administration* (581).

III.2 The program demonstrates the high priority it attaches to teaching, research, and service by its appointments and promotions; by encouragement of excellence in teaching, research, and service; and through provision of a stimulating learning and research environment.

(Responses to this standard are split into separate discussions III.2a to III.2c below.)

III.2a The program demonstrates the high priority it attaches to teaching, research, and service by its appointments and promotions.

The qualifications of UMSI faculty are demonstrated by our success in tenure and promotion cases. An important way we foster success is through a structured mentoring program which we developed in 2011. Each untenured professor and each tenured associate professor are assigned a primary mentor each year. The mentor is expected to provide general and specific guidance, such as reviewing grant proposals, drafts of papers and course evaluations; answering the mentee's questions about UMSI, U-M and their chosen discipline; and seeking others to help the mentee resolve difficulties. While no one person can satisfy all the mentoring needs for another, we are confident that our structured mentoring program is an effective approach to helping mentees network in the university and in their chosen field.

In the 2015-2016 academic year, UMSI began to participate in the University-wide Launch Committee program for first-year, tenure-track professors (http://advance.umich.edu/launch.php). Launch committees meet monthly from late August through May or June to provide support and advice to new faculty as they begin their careers at Michigan. The Launch Committee consists of the first-year faculty member, an internal (within UMSI) mentor, an external faculty mentor from another school, a UMSI associate dean, and an impartial convener.

This village approach to mentoring creates a natural networking framework and ensures greater accountability for promises made to new faculty. Table III.3 lists first-year UMSI faculty and their Launch Committee members. Additionally, two UMSI senior faculty members, Mark Ackerman and Karen Markey, served as conveners on Launch teams for the College of Engineering and the School of Dentistry.

Table III.3. UMSI Launch Committees

Assistant Prof. Mentee	Professor Mentors	Role	Department, School, or College
Ceren Budak	Deborah Goldberg	Convener	College of Literature, Science, and the Arts (LSA), Department of Ecology and Evolutionary Biology
	Dragomir Radev	Internal faculty	Information
	Scott Page	External faculty	LSA, Complex Systems, Political Science, and Economics
	Elizabeth Yakel	Associate Dean	Information
Tawanna Dillahunt	Trachette Jackson	Convener	LSA, Mathematics
	Paul Resnick	Internal faculty	Information
	Atul Prakash	External faculty	College of Engineering, Computer Science
	Elizabeth Yakel	Associate Dean	Information

Assistant Prof. Mentee	Professor Mentors	Role	Department, School, or College
Silvia Lindtner	Sally Oey Mark Ackerman Jerry Davis Elizabeth Yakel	Convener Internal faculty External faculty Associate Dean	Physics Information Business School Information
Casey Pierce	Julie Douglas Nicole Ellison Jane Dutton Elizabeth Yakel	Convener Internal faculty External faculty Associate Dean	Medical School Information Business School Information
Daniel Romero	John Monnier Paul Resnick Mark Mizruchi Elizabeth Yakel	Convener Internal faculty External faculty Associate Dean	Physics Information LSA, Sociology Information

Assistant and associate professors each meet periodically for peer-mentoring lunches where they engage in group mentoring. The Associate Dean for Academic Affairs (ADAA) convenes the group, but the assistant or associate professors set the agenda. The ADAA does not attend unless invited. The assistant professors meet monthly; half of the sessions are peer-to-peer information sessions and guests are invited to the second half over lunch to address specific topics, such as promotion and tenure, faculty annual review, mentoring doctoral students, and preparing for sabbatical. The associate professors meet every other month, and the sessions are a mix of peer-to-peer discussions and invited guests. Prime topics include working toward full professor, avoiding the post-tenure slump, and changing research areas.

Associate professors are also assigned mentors from the UMSI faculty or elsewhere if there is no one on the faculty who is a good mentor fit. Data from the U-M and beyond has shown that associate professors may face a post-tenure slump. Thus, our mentoring program is designed to help associate professors avoid or get over the slump and to help them be productive in the next stage of their career. Table III.4 provides a list of mentors for associate professors for the 2015-2016 academic year.

Table III.4. UMSI Assistant and Associate Professor (all ranks) and Lecturer Mentees-Mentors 2015-2016

Mentee	Mentor
Julia Adler-Milstein	Chuck Friedman
Ceren Budak (L)*	Markus Mobius
Kevyn Collins-Thompson	Drago Radev
Tawanna Dillahunt (L)	Paul Resnick
Kristin Fontichiaro	Karen Markey
Nancy Benovich Gilby	Tom Finholt
Elena Godin	Soo-Young Rieh
Erik Hofer	Doug Van Houweling
Pedja Klasnja	Eytan Adar
Erin Krupka	Yan Chen
Carl Lagoze	Elizabeth Yakel
Silvia Lindtner (L)	Mark Ackerman
Steve Oney	Eytan Adar

Mentee	Mentor
Casey Pierce (L)	Nicole Ellison
Joyojeet Pal	John King
Lionel Robert	Tom Finholt
Daniel Romero (L)	Paul Resnick
Sarita Yardi Schoenbeck	Cliff Lampe
Colleen Van Lent	Chuck Severance
Chris Brooks	Stephanie Teasley
Eytan Adar	Mark Ackerman
Paul Conway	Margaret Hedstrom
Cliff Lampe	Paul Resnick
Qiaozhu Mei	Drago Radev
Markus Mobius	Paul Resnick
Mark Newman	Stephanie Teasley
Maire O'Modhrain	Mark Ackerman
Soo Young Rieh	Beth Yakel
Tanya Rosenblat	Yan Chen
Tiffany Veinot	Chuck Friedman
Kentaro Toyama	John King
Chuck Severence	Doug Van Howeling

* (L) indicates part of a Launch Committee

U-M and UMSI have complementary requirements for tenure and promotion for faculty at all ranks. The provost addresses the U-M tenure and promotion in the U-M Faculty Handbook (https://www.provost.umich.edu/faculty/handbook/index.html). Appendix III.6 is the UMSI Criteria for Promotion and Tenure for Tenure-Track Faculty. Appendix III.7 is the Criteria for Hiring and Promotion of Clinical Faculty. The criteria for promotion for lecturers is governed by a union, the Lecturer's Employee Organization, which lays out its promotion criteria and procedures in their contract which appears as appendix III.8.

UMSI has developed a number of mechanisms for review and feedback for faculty to ensure that they meet the above mentioned criteria for tenure and/or promotion. The annual FAR process has been discussed in standards I.3 and I.4.1. In addition, assistant professors on the tenure, clinical, and research tracks receive an in-depth third year review which is conducted in the winter of their third year. Third-year review candidates must submit research, teaching, and service statements; five sample scholarly products; and the names of six potential letter writers. A subcommittee of the Promotion and Tenure (P&T) committee is nominated by the ADAA and approved by the Dean's Advisory Committee (DAC) to provide an in-depth written review of the third-year review candidate's portfolio. The School does not seek external letters for the third-year review. The case is then presented to the entire P&T which votes on extending an additional three-year contract to or terminating the candidate. This vote is advisory to the Dean. Third-year review processes for tenure and clinical track faculty are in the U-M's Faculty Handbook (https://www.provost.umich.edu/faculty/handbook/index.html) and appear in this self-study as appendix III.9.

UMSI handles tenure and promotion cases in a similar manner. Candidates submit research, teaching, and service statements; five sample scholarly products; and the names of six potential letter writers in May. A subcommittee of the P&T is nominated by the ADAA and approved by the DAC to generate the names of additional external letter writers and provide an in-depth written review of the candidate's portfolio. The ADAA seeks the external letters over the summer. The P&T subcommittee's report and the letters from external referees are then presented to the entire P&T which votes on tenure and/or promotion. This vote is advisory to the dean. The UMSI tenure and promotion review processes for tenure and clinical track faculty are in the U-M's Faculty Handbook (https://www.provost.umich.edu/faculty/handbook/index.html) and appear as appendix III.10. All tenure and promotion cases are then submitted to the Provost for review and approval using the U-M casebook format (appendix III.11). The dean's and provost's recommendations are then forwarded to the U-M Regents for final approval.

During the seven-year time period covered by this self-study, no promotion or tenure recommendation from the UMSI faculty and UMSI dean forwarded to the provost and the Regents has been reversed. During this time period, eight faculty members received tenure and three were promoted from associate to full professor. One research faculty member was also promoted from research associate professor to research professor. Table III.5 lists their names and ranks. In the 2016-2017 academic year, two assistant professors are up for tenure and promotion, and an additional two assistant professors will be up for tenure and promotion in the 2017-2018 academic year.

Table III.5 Tenured/Tenure-Track and Research Faculty Promotions from September 1, 2010 to August 31, 2016

Promotion to Rank	No.	Faculty
From assistant professor to associate professor with tenure	6	Eytan Adar, Cliff Lampe, Qiaozhu Mei, Mark W. Newman, Rahul Sami, Tiffany Veinot
From associate professor without tenure to associate professor with tenure	2	Paul Conway, Christian Sandvig
From associate professor with tenure to professor	3	Nicole Ellison, Barry Fishman, Elizabeth Yakel
From research associate professor to research professor	1	Stephanie Teasley

III.2b The program demonstrates the high priority it attaches to teaching, research, and service by encouragement of excellence in teaching, research, and service;

U-M and UMSI make a number of mandatory and optional activities available to all UMSI faculty, helping them to achieve excellence in teaching, research, and service. With respect to teaching, the Center for Research on Learning and Teaching (CRLT) offers a wide variety of seminars to U-M faculty generally throughout the academic year culminating in May with its week-long Enriching Scholarship Conference, a series of seminars and workshops on integrating technology with teaching, learning, and research. CRLT staff led a mandatory workshop on diversity in the classroom for all UMSI faculty in the 2014-2015 academic year and followed up a year later with an optional workshop on inclusive teaching. CRLT is also available for individual consultation with faculty, and many UMSI faculty enlist CRLT to help refine assignments or conduct mid-term course evaluations that enable them to make mid-course corrections. End-of-term course evaluations are mandatory but these only serve as one point of feedback for improving

teaching (See appendix III.12 for an example of the End-of-term Course Evaluation). Teaching is considered as a main factor in the faculty annual review (FAR) process as well as in tenure and promotion cases (see standard I.4.1). Additionally, UMSI gives out a yearly award for Excellence in Instruction. Vignettes about recent recipients provide examples of teaching excellence:

- Clinical Associate Professor *David Wallace* (Excellence in Instruction Award winner 2015). Wallace was recognized for his exemplary teaching in a core course, *Information in Social Systems* (500), where his ability to synthesize the disparate theories and practices from the breadth of UMSI specializations into a coherent vision of the information field provided students with a strong foundations for the MSI Program. Wallace also led a two-year National Endowment for the Humanities grant that infused technology into the Archives and Records Management and Preservation specializations.

- Lecturer IV *Colleen van Lent* (Excellence in Instruction Award winner 2014). Van Lent teaches introductory programming courses such as *Programming I* (SI 543) and *Web Design* (SI 206 and SI 539). She demonstrates the ability to reach out to all students, regardless of previous programming experience, and help them achieve competence as basic programmers. Her courses are always full, and students leave them with technology skills that can be applied in a wide range of professional settings.

- Clinical Associate Professor *Kristin Fontichiaro* (Excellence in Instruction Award winner 2013). Fontichiaro is an excellent teacher who regularly receives top course evaluations. Her students regularly publish articles, write and edit books, and volunteer as Michigan Makers, helping middle school students to develop STEM skills. She teaches the core course *Contextual Design and Consulting Foundations* (501) that is required of all MSI students and several courses of interest to LIS students such as *Makerspaces, Maker Culture, Maker Tools* (636), *School Library Media Management* (638), *Information Literacy for Learning and Teaching* (641), and *Professional Practice in Libraries and Information Centers* (643).

In 2015, Professor *Barry Fishman* was awarded the University's most prestigious teaching award, an Arthur F. Thurnau Professorship. This award recognized Professor Fishman's class design and integration of technological tools aimed at enhancing teaching and student learning as well as his development of the software application GradeCraft that helps students manage their coursework to achieve the grade they desire.

Since 2010, the U-M has acknowledged the exceptional teaching of several faculty with these awards:

- Associate Professor *Kevyn Collins-Thompson* was awarded a Senior Fellowship from the U-M's Center for Research on Learning and Teaching in 2014.

- Associate Professor *Paul Conway* was recognized as a Senior Fellow for the Sweetland Center for Writing's Writing Seminar in 2015 and received the Provost's Teaching Innovation Prize in 2011 for teaching the ethics of/and with new technologies.

- Professor *Barry Fishman* won the Provost's Teaching Innovation Prize in 2010 for his innovative approach to using collaboration and communication technologies to transform large lectures into small seminars.

- Professor *Karen Markey* won the Provost's Teaching Innovation Prize in 2010 for the development and deployment of BiblioBouts, a library research game that instructors integrated directly in their classes.

Excellence in research is expected of all UMSI faculty. Our faculty have a greater success rate than the national average for grant proposals. For example in the 2014-2015 fiscal year, UMSI faculty had a 39% success rate when applying for funded research. This is above the national average of 21% at the National Science Foundation and 20.7% at the National Institutes of Health. Developing excellence starts with our rigorous mentoring programs and involves additional approaches. For example, all junior faculty are invited to participate in a boot camp that assists them through the process of submitting career proposals to the National Science Foundation and Institute for Museum and Library Services. The process begins several months before these proposals are due. Junior faculty draft their proposals, they read and comment on each other's work, and they enlist more experienced senior faculty in the review process. In the 2015-2016 academic year, a similar process was instituted for faculty writing proposals for the National Science Foundation's Computer & Information Science and Engineering Directorate.

All UMSI faculty members are engaged in research and much of that research has implications in professional practice and in the real world. Several examples are:

- Supported by IMLS, Professor *Karen Markey* explored gaming's potential for solving the problem of teaching undergraduate students information literacy skills and concepts. Her research team developed the BiblioBouts online social game that covertly taught students how to do library research while they went about the business of completing a research-and-writing assignment. BiblioBouts was deployed in both academic courses and library-based information literacy workshops in the U.S. and abroad, and its evaluation formalized in the research monograph *Designing Information Literacy Games Students Want to Play* written by Markey and her research-team members Chris Leeder (UMSI doctoral student) and Soo Young Rieh (UMSI faculty).

- Associate Professor *Julia Adler-Milstein's* research on heath information technology examines the adoption of health IT and the continuing factors hindering broad-based electronic health information exchange. She led a five-year project to assess whether patients in three Massachusetts communities that comprised one of the nation's largest electronic health record (EHR) pilots had lower costs compared to patients in control communities. This study is among the first large-scale assessments of whether EHRs facilitate cost savings. Her more recent work examines the impact of hospital EHR adoption on the cost of care and how interoperable EHRs really are to assess how well they meet the meaningful use criteria established by the federal government.

- Professor *Paul Edwards* is the author of *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*, a history of how scientists learned to understand the atmosphere, measure it, trace its past, and model its future. This work has garnered several awards from different disciplines including the Louis J. Battan Author's Award from the American Meteorological Society; the Computer History Museum Book Prize; the Society for the History of Technology: Special Interest Group on Computers, Information, and Society Award; and the Atmospheric Science Librarians International Choice Award (history category). *Vast Machine* was also named a "2010 Book of the Year" by *The Economist*. Edwards was the co-leader of the

University of Michigan observer delegation to the 21st Conference of Parties (COP21) to the UN Framework Convention on Climate Change in Paris, France, that included MSI student Roxana Galusca as an actual delegate to COP21.

- Assistant Professor *Tawanna Dillahunt's* research focuses on the design and testing of applications to build social capital to assist underrepresented communities to help themselves. She is currently examining how the sharing economy can be better used in disadvantaged communities. In particular, she has developed an online system in Detroit where job seekers help one another by reviewing resumes, providing feedback on mock interviews, and sharing job opportunities.

UMSI faculty are dedicated to service to the School, to U-M, and to their broader professional communities. At UMSI, exceptional service is recognized by both the Joan Durrance Community Engagement Award and the Michael D. Cohen Outstanding Service Award.

The Joan Durrance Community Engagement Award honors UMSI faculty who build partnerships with communities to develop successful, sustainable information-related projects that address societal challenges. Recent winners are:

- Clinical Associate Professor *Kristin Fontichiaro* (2015) for her creation of *Michigan Makers* which is bringing the maker movement and STEM skills to underserved communities throughout the state.
- Associate Professor *Cliff Lampe* (2014) for his multifaceted *Citizen Interaction Design* (CID) program. Funded by UMSI's Founders Fund, CID began as a three-year partnership with the city of Jackson, Michigan, in which UMSI graduate students initiate and design programs to facilitate better communication between citizens and local government agencies such as the public library. Thanks to additional funding from the University of Michigan Third Century Initiative, CID expands to two more Michigan communities in 2016 and even more in the years to come.
- Assistant Professor *Joyojeet Pal* (2014) for leading the *Global Information Engagement Program* (GIEP), in which students worked with partner non-profit organizations in India remotely and on location to develop and deliver solutions to organization-identified information problems.

The Michael D. Cohen Outstanding Service Award recognizes commitment to serving the UMSI community and mission. Recent winners are:

- Professor *Margaret Hedstrom* (2015) for her leadership in the MSI curriculum reform process and creative rethinking of how the MSI degree could offer students breadth, depth, and more individualized academic plans.
- Research Professor *Stephanie Teasley* (2014) for her many years of service to UMSI, directing the UMSI doctoral program and, at the university level, for her service on the U-M Information Technology Council, Provost's Online Education Policy Committee, Learning Analytics Task Force, and Digital Initiatives Advisory Group.
- Professor *Charles Friedman* (2013) for his work as the first director of the Master of Health Informatics Program, a joint degree program between UMSI and the U-M School of Public Health. He also developed the Health Informatics Certificate which MSI students can add onto their primary degree.

Most UMSI faculty are engaged in service on one of UMSI's standing committees—Dean's Advisory Committee (DAC), Bachelor of Science of Information (BSI) Program Committee, Master of Science in Information (MSI) Program Committee, Master of Health Informatics (MHI) Program Committee, Doctoral Committee, Faculty Search Committee, or the Diversity Committee. They also participate in the many student-oriented recruitment, admissions, or advising activities that OSA and CDO host throughout the year (See appendix III.13 for a full list of UMSI faculty participation on UMSI's internal committees, University-wide committees and task forces, and faculty committees in other U-M units).

UMSI faculty serve on University-wide committees. Table III.6 lists UMSI faculty appointments to University-wide committees. Note the diversity and range of the task forces and committees.

Table III.6. Faculty Participation on University-Wide Committees from 2010 to 2016

Year	Faculty Name	University-wide Committees
2013-2014	Mark Ackerman	University of Michigan, campus-wide entrepreneurship program planning committee
2014-present	Eytan Adar	Advisory Committee for the Graduate Certificate Program in Spatial Analysis (Member)
2013-present	Eytan Adar	University of Michigan Health System Health Information Exchange Operations Workgroup (Member)
2012-present	Eytan Adar	University of Michigan Learning Health System Policy Task Force (Co-Chair)
2010-present	Eytan Adar	Michigan Data Sciences (MIDAS) (Co-organizer, Co-founder)
2013-present	Julia Adler-Milstein	University of Michigan Health System Health Information Exchange Operations Workgroup (Member)
2012-present	Julia Adler-Milstein	University of Michigan Learning Health System Policy Task Force (Co-Chair)
2015-present	Nancy Benovich-Gilby	Innovate Blue Undergraduate Minor Curriculum Committee
2015-present	Nancy Benovich-Gilby	TechArb coordinator, mentor
2016-present	Christopher Brooks	Data Governance Working Group, SPG 601.12 (Member)
2015-present	Christopher Brooks	Member, DIAG Subcommittee on Personalized Learning and Analytics (PLA)
2015-present	Christopher Brooks	U-M Data Manager for Student Class Performance Measurement and Learning Management System Usage data
2015-present	Christopher Brooks	Academic Innovation at Michigan Analytics Group (Faculty Sponsor and co-organizer)
2015	Christopher Brooks	IMS Advisory Committees (Real Time Learning Analytics and Open Educational Video)(Member)
2014-2016	Christopher Brooks	Vice Provost Digital Innovation and Advisory Group Subcommittee (Member)
2014-2017	Christopher Brooks	Unizin Learning Analytics Working Group
2013-2014	Christopher Brooks	Privacy Committee, Michigan VP for Digital Educational Initiatives (Member)

Year	Faculty Name	University-wide Committees
2014-2015	Kevyn Collins-Thompson	Office of Digital Education and Innovation: Academic Reporting Tools Steering Committee
2014	Paul Conway	Provost's Task Team on Engaged Education and Digital Learning
2014-2015	Paul Conway	Center for Research on Learning and Teaching, Graduate Teaching Certificate + Digital Media (Faculty Mentor)
2012-2016	Paul Conway	University Library, Executive Committee, University of Michigan Press
2011-2014	Paul Conway	University Library, Library Council
2011-2012	Paul Conway	Task Force on Undergraduate Education
2011-2013	Paul Conway	Center for Research on Learning and Teaching, Faculty Advisory Board
2011-2013	Paul Conway	University Musical Society, UMS Lobby Project, National Steering Committee
2016	Paul Edwards	Rackham Predoctoral Fellowships Review Committee
2015	Paul Edwards	Co-leader, University of Michigan observer delegation to the 21st Conference of Parties to the Framework Convention on Climate Change, Paris
2014-2015	Paul Edwards	Steering Committee, Michigan Meeting on Academic Engagement
2013-present	Paul Edwards	President's Advisory Committee on University History
2010-2012	Paul Edwards	Director, UM Science, Technology & Society Program
2016	Barry Fishman	Information Technology Council Teaching and Learning Steward
2016	Barry Fishman	Digital Innovation Advisory Group (Chair)
2016	Barry Fishman	Provost's Seminar on Teaching Planning Committee
2016	Barry Fishman	Arthur F. Thurnau Professors Selection Committee
2016	Barry Fishman	Learning Analytics Task Force
2015	Barry Fishman	Co-Chair, Digital Innovation Advisory Group
2015	Barry Fishman	DEI 2. Learning Analytics Task Force
2015	Barry Fishman	CRLT Director Search Committee
2015-present	Kristin Fontichiaro	Grants Reviewer, Center for Entrepreneurship
2001-present	Margaret Hedstrom	Gerald R. Ford Presidential Library Advisory Committee
2014	Carl Lagoze	ICPSR council member and chair of preservation subcommittee
2014	Carl Lagoze	Member of MiNDS (Michigan Institute for Data Science) Steering Committee
2016	Silvia Lindtner	STS (Science and technology studies) mini conference on "Translating Bodies," organization faculty chair
2015-2016	Silvia Lindtner	Steering committee 2015/2016, University of Michigan Science, Technology and Society (STS) Program
2015-2016	Karen Markey	Convener, Launch Program, U-M
2011	Karen Markey	Selection Committee for the 2011 Provost's Teaching Innovation Prize
2016	Dragomir Radev	Faculty and Engagement and Recruiting Committee, Data Sciences (MIDAS)
2014	Dragomir Radev	Steering Committee, Data Sciences (MIDAS)
2014-2016	Soo Young Rieh	Rackham Graduate School Barbour Scholarship Review Committee
2013-2016	Soo Young Rieh	University Library Council
2015	Lionel Robert	University of Michigan Unmanned Systems Committee
2014	Lionel Robert	Advisory Board for the 2014 Summer Research Institute
2013-2014	Christian Sandvig	Executive Committee, University of Michigan Press
2014-present	Stephanie Teasley	Digital Initiatives Advisory Group
2013-2014	Stephanie Teasley	Provost's Online-Education Policy & Strategy Committee

Year	Faculty Name	University-wide Committees
2013-present	Stephanie Teasley	Information Technology Council, U-M
2012-2013	Stephanie Teasley	Provost's Coursera Advisory Group
2012-present	Stephanie Teasley	Learning Analytics Task Force
2010-2011	Stephanie Teasley	Teaching and Learning Advisory Committee
2010-2011	Stephanie Teasley	SACUA Continuous Enrollment Task Force
2010-2011	Stephanie Teasley	Unit IT Steering Committee (prepared a special report)
2006-2011	Stephanie Teasley	Security Oversight Committee
2011	Tiffany Veinot	Award Juries and Panel, University of Michigan, Library 2.0 Design Competition
2014-present	Elizabeth Yakel	University Library Council
2014-2015	Elizabeth Yakel	Business Engagement Center, Advisory Council
2013-present	Elizabeth Yakel	Rackham Allies for Diversity
2013-2014	Elizabeth Yakel	Senate Advisory Committee on University Affairs (SACUA), Special Task Force on Scholarship: Transmission and Ownership
2013-present	Elizabeth Yakel	William L. Clements Library, Faculty Advisory Committee
2009-2012	Elizabeth Yakel	Faculty Grievance Review Board
2007-2011	Elizabeth Yakel	William L. Clements Library, Building Committee

III.2c The program demonstrates the high priority it attaches to teaching, research, and service by provision of a stimulating learning and research environment.

Regularly Scheduled Events at UMSI

U-M and UMSI provide a stimulating learning, research, and service environment. Table III.7 enumerates the School's regularly scheduled events that expose members of the UMSI learning community to a broad range of themes and to speakers based locally and throughout the country. The table's top two-thirds covers UMSI-based events and its bottom third covers events sponsored by related and allied U-M units that are publicized and attended by UMSI faculty.

Table III.7. Regularly Scheduled Events

Event | Frequency	Theme | Invited Speaker Details
UMSI-Based Events:	
Convocation | Annually in September	Introducing new UMSI faculty members and featured opportunities in this academic year | Dean, School of Information, U-M.
Digital Futures Lecture Series | Monthly	Example lectures are "Why Ad Blocking is a Good Thing" | Doc Searles, journalist, author, and Fellow, Center for Information Technology & Society, University of California, Santa Barbara; "Communicating Self in a Networked World" | Natalie Bazarova, Assistant Professor, Department of Communication, Cornell University; "Plans and Models: Digital Tools, Sticky Practices, and the Thorny Problem of Innovation" | Gina Neff, Associate Professor, Communication, University of Washington; "Networking Peripheries: Technological Futures, Digital Memory, and the Myth of Digital Universalism" | Anita Say Chan, Assistant Research Professor, Department of Media and Cinema Studies at the University of Illinois, Urbana-Champaign.

Event | Frequency	Theme | Invited Speaker Details
UMSI-Based Events:	
FIRST Talks (ended in 2014)	Example talks are "Coordination in Networks: Behaviors in Social Networks during a Featured Information Research Student Talk" | Carrie Wu, Doctoral Student, UMSI, U-M; "Developing a Psychosocial Index to Support Provider Decision Making in Negotiating Individualized Clinical Goals for Diabetes Patients" | Charles Senteio, Doctoral Student, UMSI, U-M; "DUMB: Five Patterns from the Life and Work of Richard Saul Wurman" | Dan Klyn, Adjunct Lecturer, UMSI, U-M.
Google Lecture Series (ended in 2014)	Example lectures are "Creating Business for an Anytime Anywhere World" | Alice Taylor, Strategic Planning Executive, South Bay Entrepreneurial Center; "Life Lessons of a Serial Entrepreneur" | Nathaniel Borenstein, Chief Scientist, Mimecast; "The Internet Wins: How Hacker Culture Drives Creative Destruction" | Dug Song, Co-Founder and CEO, Duo Security.
Graduation | Annually in April	Commencement address (2016) | Wael Ghonim, Senior Fellow, Harvard Kennedy School, Ash Center for Democratic Governance and Innovation
(Undesignated) Guest Speaker Lectures | Varies	Example lectures are "Gesture-Based User Interfaces for a More Accessible World" | Shaun Kane, Assistant Professor, Department of Information Systems, University of Maryland, Baltimore County; "The Role of the Computing Community Consortium in Advancing Audacious Computing Research" | Beth Mynatt, Executive Director, Institute for People and Technology, Georgia Tech; "The Fifth Estate: Social Accountability in the Information Age" | William Dutton, Professor of Internet Studies, Oxford Internet Institute (OII), and Fellow, Balliol College, University of Oxford.
Homecoming | Annually in Fall	Diverging Trends in Archives and Research Libraries (2015) | Tom Hyry (MILS '96), The Florence Fearrington Librarian, Houghton Library, Harvard University.
John Seeley Brown Lecture | Yearly in Fall	(2015) Leigh Alexander, Editor-in-Chief, Offworld
Michigan Interactive & Social Computing (MISC) talks | Weekly	Example talks are "About, With, and Becoming: Designing Socio-Technical Futures around Labor, Fashion, and the Body" | Laura Forlano, Assistant Professor of Design, and Director, Critical Futures Lab, Illinois Institute of Technology; "MiHIN Use Case Factory: Michigan's Mass Data Sharing Approach" | Tim Pletcher, Adjunct Research Investigator, Department of Learning Health Sciences, U-M, and Executive Director, MiHIN; "Online Social Support" | Robert Kraut, Herbert A. Simon Professor of Human-Computer Interaction, School of Computer Science, Carnegie Mellon University.
MISC Retreat | Annually in Spring	Keynote | Robert Goodspeed, Taubman College of Architecture and Urban Planning, U-M.
MIX (Multi-Ethnic Information Exchange) Lectures | Varies	Example lectures are "Wayfinding and Opportunity: Transitioning from Graduate Life to Career" | Elaine L. Westbrooks, Associate University Librarian for Research, University of Michigan Library; "Quantity and Quality: A Look at Elements and Their Implementation Designed to Enhance Retention Resulting in an Increase in the Ethnic Diversity of Science-Related Degrees Awarded" | Keith Williams, Wayne State University.
Reverend Dr. Martin Luther King, Jr. Symposium event | Annually in January	(2016) Alicia Garza, Special Projects Director, National Domestic Workers Alliance and Co-Creator of the Viral Twitter Hashtag and Associated Movement #BlackLivesMatter.

Event | Frequency	Theme | Invited Speaker Details
UMSI-Based Events:	
Student Chapter, American Library Association's QuasiCon Conference | Annually in January	"What Libraries Can Do For YOU!" | Keynote Speaker in 2016: Jen Taggart, Assistant Head of Youth Services, Bloomfield Township Public Library, Michigan.
Student Chapter, Society of American Archivists, plus a co-sponsor | Annually	"The Age of Big Data Archives" | Maria Esteva, Research Associate/Data Archivist, Texas Advanced Computing Center.
Yahoo! Speaker Series	"Desire by Design" | Tom Keilty, Assistant Professor, Faculty of Information, and Instructor, Bonham Centre for Sexual Diversity Studies, University of Toronto; "The ABCs of Research" | Ben Shneiderman, Distinguished University Professor, Department of Computer Science, University of Maryland.
Campus Events Publicized and Attended by Members of the UMSI Learning Community:	
Dissonance Speaker Series	"Privacy, Cybersecurity, the Internet, and the Stakes in This Year's Election" | Peter Squire, Huang Professor of Law and Ethics, Law School, Georgia Tech.
Interdisciplinary Committee on Organizational Studies (ICOS) Friday afternoon seminar | Weekly	"Institutions, Precarious Work, and Inequality" | Arne Kalleberg, Kenan Distinguished Professor, Sociology, University of North Carolina.
Michigan Institute for Data Science (MIDAS) lecture series | Weekly	"The Potential of On-Demand Mobility: Lessons from System Analysis and Data Visualization" | Dimitris Papanikolaou, Postdoctoral Researcher, Graduate School of Design, Harvard University.
Museum Studies Brown Bag Series | Monthly	"History Compels Us to be Daring: Sites of Conscience in Action Around the World" | Julieta Cuellar, Global Networks Program Manager, International Coalition of Sites of Conscience
Science, Technology, & Society (STS) Program Speaker Series | Monthly	"Dirty Bits: Environmental History of the Computer" | Nathan Ensmenger, Associate Professor, Indiana University
Social, Behavioral, and Experimental Economics (SBEE) Seminar Series | Weekly	"Markets for Leaked Information" | Georg Weizsaeker, Visiting Professor, Stanford University

UMSI's conference hosting usually coincides with faculty involvement in professional societies, research, and teaching. For example, UMSI hosted ICTD2016, the 8th International Conference on Information and Communication Technologies and Development, in spring 2016. The conference was chaired by Associate Professor Kentaro Toyama and explored the role of information and communication technologies (ICT) in global development. UMSI hosted the Making Maker Learning Conference in spring 2015 thanks to funding Clinical Associate Professor Kristin Fontichairo received from the U-M Third Century Initiative and the UMSI Founders Fund. Conference registration was free, open to those who work with K-8 students in informal settings such as libraries, community centers, and after-school programs. In fall 2014, UMSI hosted Data, Social Justice, & the Humanities, a theme that occupies a prominent place in the research and teaching of its co-organizer, Clinical Associate Professor David Wallace.

Faculty Engagement with Students

The extent to which UMSI faculty engage with MSI students goes far beyond their obligation to teach three courses per academic year. Faculty advise students during office hours, in response to student requests for appointments, and during the formal advising period prior to registration for winter semester courses. Rather than being assigned to faculty advisors, students are free to consult one or more faculty members, and, typically, advising involves faculty referring students to their colleagues, smoothing their path with an in-person or email-based introduction. Faculty advising extends to student organizations; however, the ADAA matches faculty members to student organizations that are relevant to their teaching, research, and service interests and experience. Faculty also participate in various MSI recruitment activities, meeting prospective students during Fall and Spring Visiting Days, serving as mentors to incoming students during Orientation's Information Challenge (standard II.3a), and even responding to OSA-staff requests to meet with prospective students who visit campus on short notice at any time of the year.

UMSI faculty are especially innovative, creative, and inventive in their approach to engaging students in substantive content. Tables II.8 and III.9 provide evidence of the unique ways they engage students in teaching.

Formal policies connected with initiating an independent study project or master's thesis are few, and visiting faculty during their scheduled office hours is the perfect time for students to probe a faculty member's interest in their work. Most faculty members encourage students to follow up their visit with an independent study proposal or MTOP proposal that becomes increasingly more defined and concrete during subsequent visits until all involved parties are satisfied. Standard II.2.4's Relevant Research Projects describes funded research projects involving MSI students, and if those aren't enough, the bottom half of Table III.8 tells more ways in which MSI students engage in research with UMSI faculty.

MSI students who participate in the School's I3 Program receive individual attention from the faculty whose teaching assignments fall within the Program's purview. GIEP faculty mentor students on campus during project design and in the field (India in 2015 and South Africa in 2016) during project development (standards II.1c and II.2.4). CID and Michigan Makers faculty do much the same but are situated closer to home in Central and Southeastern Michigan (standard II.1c). Entrepreneurship is yet another I3 Program in which students receive individual attention (see standard II.1c and Tables III.8 and III.16 under UX Design Clinic, 663, and Innovation Trek). Finally, students might find themselves rolling up their sleeves and working alongside faculty members during UMSI Service Day in mid-January (standard II.2.4), providing both parties with an informal opportunity to connect and get acquainted.

Table III.8. UMSI Faculty Engagement with Students

Course, Program, or Instructor	Description
Teaching	
Intellectual Property and Information Law (519)	A student's blog won him a media pass to Las Vegas for the Consumer Electronic Show. Also in this class students choose a course-related topic that meets the instructor's approval, write short papers, and produce audio recordings that simulate podcasts. Students are expected to explore their own intellectual property-, privacy-, and speech-type interests and experiment with the audio format as well as the idea of publicly exposing (publishing) their work. The results exceeded the instructor's expectations, especially when reading papers that were interviews, the students took on a different voice to match the interviewee's perspective.
Game Theory (563)	In teams, students are tasked with editing 10 Wikipedia articles on various game theory topics, especially adding domain expert knowledge from the published academic literature.
Information Architecture (658)	The instructor challenges students to apply brick-and-mortar architect Christopher Alexander's normative theory, defining what "good" means in places that are supposed to increase human well-being to complex information spaces. Results have been exceptional and unique, for example, involving films, songs, character remappings.
UX Design Clinic	The clinic embraces an apprenticeship model in which students with industry experience and/or leadership skills act as a team lead, students with UX Design coursework experience who are not ready for leadership act as Designer 2s, and students with little such experience act as Designer 1s. Ultimately, a team is comprised of one team lead, two D2s, and two D1s, taking on a design project in which the more senior members help teach and guide the junior members.
Preservation Administration (581)	A student project in this class led to a follow-up research project supported by a University Library Engagement mini-grant to inventory and digitize videotapes held by a local historical society, giving the student opportunities to work directly with the Head of the U-M Library's Department of Preservation & Conservation, collection managers, and an AV expert at a campus lab.
Data Mining (671)	Students participate in a Kaggle-in-Class challenge, an online data mining/machine learning competition-style assignment, that allows for students to try different mining approaches on a specific dataset and "compete" for top ranking. Student participation counts in building their overall Kaggle profile. Many data mining-related employers consider participation and good performance in numerous Kaggle competitions as a plus.
Research	
Professor Elizabeth Yakel's IMLS-sponsored Research Experience for Masters Students (REMS) Program	This summer program brings masters-level students from other institutions to the U-M where they participate in a research initiative led by a faculty member, librarian, or archivist. They attend a weekly research-skills seminar, learn about doctoral education, and develop research presentation skills. Ultimately, the program's goal is to improve the research skills of future library and archive professionals as well as recruit better-prepared doctoral students.

Course, Program, or Instructor	Description
Research	
Associate Professor Kentaro Toyama and Assistant Professor Tawanna Dillahunt	Their research involves working with Detroit's non-profit Eastside Community Network to develop entrepreneurial capacity in the city's poorest communities including consultation with non-profit staff to mentor community members into giving income-earning neighborhood tours.
Assistant Professor Sarita Yardi Schoenebeck	She advises MSI students who are bold about the topics they research, for example, Priya Kumar's master's thesis studied the privacy considerations new mothers make around sharing baby photos on Facebook and NPR featured it on their homepage a month after its completion. Also, her NSF-sponsored research has supported various MSI students: (1) developing an interactive online quiz for parents to learn about their children's social media use, (2) analyzing the temporal patterns of the 100 million posts and comments about pregnancy on the website BabyCenter.com, and (3) studying community use of Tumblr after the suicide of transgender youth.
Professor Elizabeth Yakel	Former MSI student Doris Malkmus served as co-author of her well-received practitioner-facing volume, *Contextualizing Archival Literacy*.

III.3 The program has policies to recruit and retain faculty from diverse backgrounds. Explicit and equitable faculty personnel policies and procedures are published, accessible, and implemented.

UMSI strives to recruit and retain a diverse faculty in support of the MSI Program. We discussed diversity recruiting at the beginning of chapter III when discussing faculty and our theme of diversity, equity, and inclusion. For standard III.3, we will discuss our recruiting process. Annually in May, the ADAA solicits proposals from faculty concerning potential areas in which to recruit. The DAC examines the proposals, considers the overall programmatic goals and the financial situation, and advises the ADAA on hiring new faculty. The dean then consults with the UMSI Leadership Team (LT) and makes a final decision in August.

U-M and UMSI have a structured hiring process to ensure diversity, equity, and inclusion. Every three years, members of search committees must enroll in the UM-administered faculty-hiring workshop entitled Strategies and Tactics for Recruiting to Improve Diversity and Excellence (STRIDE). STRIDE explores research on bias in hiring and outlines recruiting practices that lead to the identification of more diverse and well-qualified candidates for faculty positions. In the 2016-2017 academic year, the LT is encouraging all faculty who have not taken STRIDE to attend, regardless of their appointment to search committees.

In terms of faculty search administration, an overall chair coordinates the search aided by subcommittees for each open position. Each subcommittee draws up its own plan and process for the search that includes strategies and processes for recruiting, ensuring diversity in the pool, application review and selection (e.g., approval voting, majority vote, supermajority vote, etc.), and conducting phone interviews (via audio, video, or both). Table III.1 lists new faculty hires from September 1, 2010 to August 2016.

The UMSI Faculty Handbook (https://sites.google.com/a/umich.edu/umsi-policies/?pli=1) describes all policies and procedures for activities in which faculty engage. It is updated

yearly by the ADAA and its contents align with the other major documentation regarding faculty life such as the U-M's Standard Practice Guide (SPG) (http://spg.umich.edu/), and the U-M's Faculty Handbook issued by the Office of the Provost (http://www.provost.umich.edu/faculty/handbook/index.html). Faculty are informed of major policies during a new faculty hire orientation provided by the university as a whole and a separate orientation for new hires provided specifically by UMSI. Furthermore, assistant and associate professors get more detailed information about certain policies (promotion and tenure) in the group mentoring sessions, discussed in standard III.2a, throughout the year.

Personnel policies are equitable and promote inclusion. The University of Michigan has adopted several family-friendly policies. These include tenure-clock extension, family or medical leave, modified duties, and transitional programs. Various UMSI faculty have taken advantage of all of these options over the years. Extending the tenure clock is done when faculty members experience a life event that prevents them from carrying out their duties. When a faculty member opting for tenure-clock extension comes up for tenure, the period of stoppage is not counted, for example if the faculty member stopped the clock for a year and came up for tenure in their chronological seventh year, it would be considered that they came up in their sixth year and, thus, on time. Family leave is a complete or partial waiver from research or teaching, and faculty members can request it for a number of reasons including eldercare or childcare.

To increase the diversity of UMSI faculty, UMSI has benefitted from the Presidential Post-Doctoral Fellowship Program (Presidential-Post-Doc). This is a partnership between U-M and the University of California, begun in 2011, offers newly graduated PhDs whose research, teaching, and service contribute to diversity and equal opportunity in higher education a transitional postdoctoral year between the PhD and a tenure-track faculty position. New PhDs who bring a critical perspective from their non-traditional educational backgrounds or experiences of groups historically underrepresented in higher education are encouraged to apply. Applicants identify mentors in different schools on the U-M campus who write letters of recommendation. Selection of the Presidential Post-Doctoral Fellows takes place centrally at U-M where senior colleagues select the most promising applicants in diverse fields. This program gives newly graduated PhDs a one- to two-year postdoc where they can cement their research agenda and transition to the faculty. UMSI has used this program to identify and hire two of the new faculty members listed in Table III.1: (1) *Tawanna Dillahunt*, who designs, builds, and tests applications to better the lives of underserved populations, and (2) *Daniel Romero*, whose research focuses on the empirical and theoretical analysis of social and information networks, especially network evolution, information diffusion, and interactions among people on the web and in complex organizations. A third Presidential-Post-Doc, *Steve Oney*, will transition onto the UMSI faculty in the 2016-2017 academic year. This program has brought substantial diversity to the UMSI faculty.

III.4 The qualifications of each faculty member include competence in designated teaching areas, technological skills and knowledge as appropriate, effectiveness in teaching, and active participation in relevant organizations.

The UMSI faculty's diverse disciplinary backgrounds and qualifications enable us to offer a wide variety of courses in the MSI Program (see chapter II). Appendix III.2's list of faculty, degrees, and their degree-granting schools and colleges underlines this diversity.

UMSI specifically and the U-M generally value good teaching. Standard III.2b discusses teaching awards and faculty workshops to improve teaching. Faculty effectiveness in teaching is measured in several ways. Faculty themselves seek input from students throughout the term. Some faculty seek CRLT's assistance, asking senior staff to review teaching materials or help administer midterm evaluations. The latter consists of a CRLT-administered teaching observation followed by feedback to the instructor and a CRLT-led focus group with students at the end of a class session (minus the instructor's presence). CRLT staff analyze the focus group's proceedings, providing anonymized information to the instructor, and following up with advice to the instructor. These CRLT assessments are initiated by the instructor and are done at the instructor's discretion. In any one semester, about one-quarter of the faculty take advantage of this opportunity. The assessment is confidential between CRLT and the faculty member. This enables frank conversation and honest feedback between the CRLT expert and UMSI faculty member. From conversations with faculty, the results of the feedback have included more interactivity or discussion in class, better instructions for assignments, more or different types of feedback for assignments, and better communication between instructors and students.

End-of-term student evaluations are mandatory for all UMSI and U-M faculty across all University programs, schools, and colleges. These evaluations are administered online, and they contain 5-point Likert scale questions (5 is strongly agree; 1 is strongly disagree) and an open-ended response question. Table III.9 presents the results of four questions pertaining to faculty teaching in the MSI Program in winter 2016. Scores averaged 4.3 for these questions.

Table III.9. Winter 2016 End-of-Term Course Evaluations (N=35 courses and 28 faculty)

Question Number	Question Text	MSI Program Average (Winter 2016)
Q1	Overall, this was an excellent course.	4.3
Q2	Overall, the instructor was an excellent teacher.	4.3
Q3	I learned a great deal from this course.	4.3
Q4	I had a strong desire to take this course.	4.3

UMSI also considers teaching by its intermittent or adjunct instructors important. As previously noted, all intermittents must be observed at least one time per year. We also review their teaching evaluation scores and student comments. Table III.10 provides a comparison of the median teaching evaluation scores for all courses taught by full-time faculty and intermittent or adjunct faculty. Note that full-time faculty teach far more courses per term than adjuncts. In summary, the scores for both groups are generally good and above the 4.0 mark. In only one semester does the median score for adjuncts fall below 4.0. Although it is hard to reach statistical conclusions given the different numbers of courses, in most terms the scores are on par between faculty and adjuncts.

Table III.10 Comparison of Teaching Evaluation Scores between Full-time Faculty and Adjunct Faculty

			Median for Q1		Median for Q2		Median for Q3	
Term	Faculty -Taught Courses	Adjunct-Taught Courses	Faculty	Adjunct	Faculty	Adjunct	Faculty	Adjunct
Fall 2015	37	9	4.19	4.13	4.58	4.30	4.50	4.25
Winter 2015	38	8	4.36	3.84	4.60	4.28	4.50	4.07
Fall 2014	45	4	4.30	4.53	4.70	4.78	4.50	4.77
Winter 2014	38	9	4.29	4.72	4.61	4.84	4.50	4.72
Fall 2013	39	14	4.25	4.25	4.61	4.33	4.33	4.42
Winter 2013	31	8	4.23	4.31	4.56	4.31	4.25	4.66

Teaching is a part of the Faculty Annual Review (FAR) process. In the past, faculty had to articulate a plan for improvement in their FAR's annual goals section if their scores fell below 3.0. In 2014, the Dean decided that faculty should outline plans for improvement if their scores fell below 4.0 on Q1 or Q2. This change was part of the overall school-wide strategic plan to emphasize excellence in teaching, identify faculty experiencing difficulties in this regard, and provide support for them. Faculty scoring well below 4 meet with the ADAA to discuss potential causes and come up with a plan for improvement. Improvement plans may involve changes in pedagogy or in some cases changes to the course content. Course evaluations also feed into curricular evaluation.

In addition to the end-of-term evaluations, lecturers are observed in the classroom on an annual basis by UMSI faculty observers who have subject expertise in the area being taught and are known for their teaching skill. Faculty observe each lecturer, meet with the lecturer to provide feedback, and submit a written report and lecturer's response to the report to the ADAA. The ADAA then determines if a plan for improvement is needed or in the case of intermittants, whether continued employment is warranted.

III.5 For each full-time faculty member, the qualifications include a sustained record of accomplishment in research or other appropriate scholarship (such as creative and professional activities) that contribute to the knowledge base of the field and to their professional development.

UMSI faculty are accomplished researchers. During the self-study period, UMSI faculty received an average of $4.3 million dollars in research funds per fiscal year (July to June) (Table III.11). In the 2014-2015 fiscal year, UMSI ranked 13th of 19 U-M schools and colleges in externally funded research expenditures. Table III.11 summarizes UMSI's research activity pertaining to new and active grants, number of sponsors, and amount of new funding awarded (in millions of dollars). Appendix III.14 lists research grants awarded during the last 10 months of 2010 through the first two months of the 2017 fiscal year.

Table III.11. UMSI Research Activity from September 1, 2010 to August 31, 2016

	[10 months] FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	[2 months] FY 2017
New Grants	16	22	24	26	33	19	8
Amount of New Funding Awarded* (in millions)	$2.77	$6.18	$2.42	$4.29	$8.28	$1.61	$2.31
Number of Active Grants	76	85	84	84	98	87	60
Number of Sponsors	18	18	21	27	28	27	16

*UMSI portion of funds: Does not include pass-through funds or subcontracts.

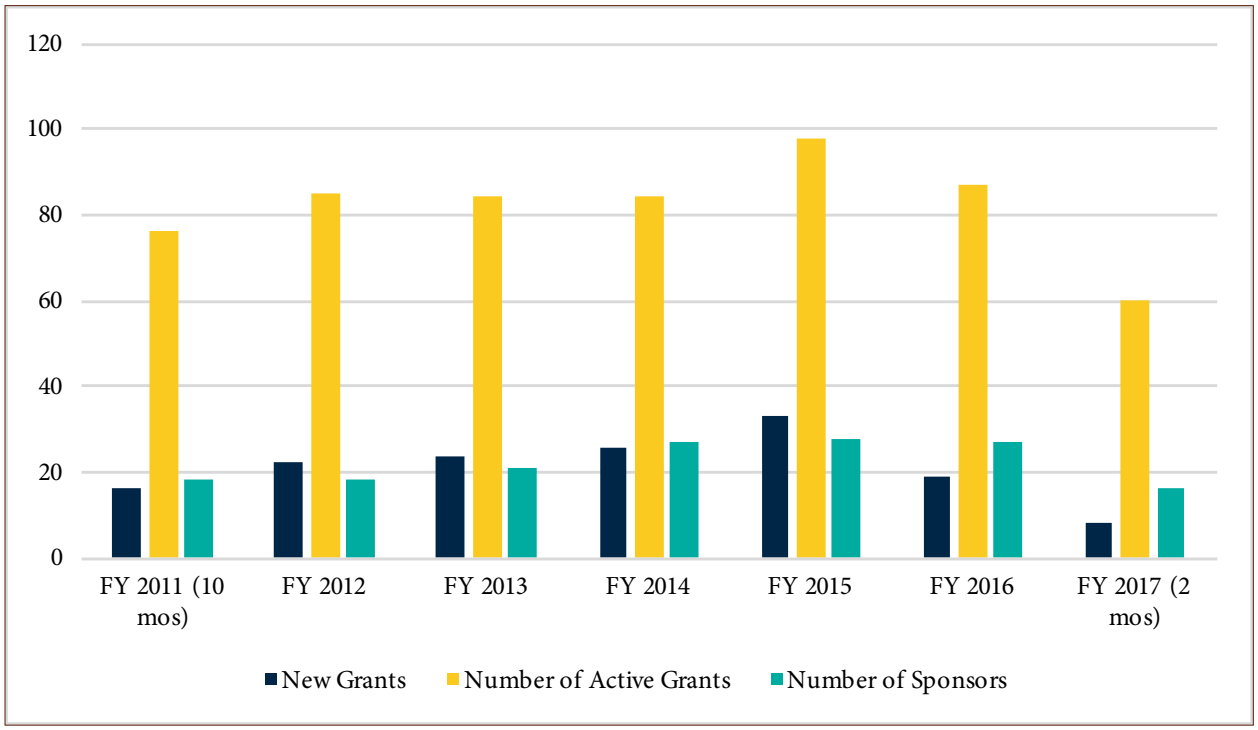
The amount of funding in FY 2015 far exceeded either FY 2014 or FY 2016. This appears to be more of an anomaly than it is. There were more grants awarded in 2015 and several were larger (around $1.5 million) than our average grant award. Given the overall number of grants, small changes can make large differences. Grant cycles can also be shortened or lengthened; the FY 2015 award amount represents grants submitted as early as 2013 which were eventually awarded in 2015. The vagaries of some granting agencies makes it difficult to predict amounts awarded from year to year and causes large variations in yearly reports on grant funds.

The major funding agencies supporting UMSI research are the National Science Foundation (NSF) and the IMLS. Overall, faculty have received funding from 31 unique federal agencies, private foundations, and corporations between the 2011 and 2017 fiscal years. Figure III.2 shows that the number of active grants ranged between 76 and 98 during the full fiscal years 2012 to 2016. The number of sponsors ranged between 18 and 31 during this same time period.

Over the past seven years, the proportions of tenure-track faculty at the different ranks has changed. Right now, we have more assistant professors than in the past 20 years. As a result, we have more small grants and a wider range of sponsors (federal government, foundations, industry). We have therefore initiated several programs to enhance the research administration and grant-writing skills of faculty. In terms of research administration skills, faculty are encouraged to engage in leadership training to build their own capacity to lead larger research teams. For example, the U-M offers a series of leadership training seminars for new associate and full professors called LIFT: Leadership and Integration at Faculty Transitions. Several of our recently promoted associate and full professors have attended these seminars. One of these is Nicole Ellison, who recently assumed the position of Director of the Doctoral Program. The large-scale grant program arose out of the strategic planning process discussed in standard I.4.1. Also, the dean and associate deans found that many faculty struggled to develop winning grant proposals. In response, the ADRFA expanded the program of using peer writing groups to prepare grant proposals. Long restricted to the NSF and IMLS Career Proposals, faculty writing groups are now forming around a wide variety of calls for funding. This also helps faculty and the UMSI Office of Research plan for a prolonged lead time for proposal development. Thus, systematic evaluation is used both individually and institutionally to improve the program and feeds into the planning process. This peer-review process for

proposals has also increased the research skills of faculty as they have timely feedback into their research designs and are able to craft better research aims.

Figure III.2. Grant Activity and Sponsor Level from September 1, 2010 to August 31, 2016



Research grant submissions and post-award management and financial accounting are well supported by UMSI. Our research office is staffed by 3.5 individuals who are experts in grant policy, submission preparation, and post-award management. They are especially adept at budget preparation and grant proposal submission, freeing up faculty to concentrate on the science and research design aspects of the research grant process. Staff also keep abreast of new University and federal policies, advising faculty as needed in this regard.

The latest member of the research office staff was added in 2014. This staff member focuses part of her time on large-scale grant submissions. This includes building faculty capacity over the long term to submit *large-scale* grants. Not only are UMSI faculty encouraged to submit larger grants, they now have knowledgeable and experienced research office staff to support them. Over the course of the self-study period, UMSI received these two large-scale grants:

- *Sustainable Environment Actionable Data* (SEAD). Professor *Margaret Hedstrom* received $8 million from NSF's Data-Net grants for this digital curation project in which she developed a suite of data services designed for sustainability science researchers. These services support data management, integration, sharing, curation, and preservation for scientists working in the diverse physical and social science disciplines that comprise sustainability science. Project partners included researchers at the University of Illinois and Indiana University.
- *Enhancing the Cardiovascular Safety of Hemodialysis Care: A Cluster-Randomized, Comparative Effectiveness Trial of Multimodal Provider Education and Patient Activation Interventions.* Associate Professor *Tiffany Veinot* was awarded $6.7

million from the Patient-Centered Outcomes Research Institute (PCORI) to test two interventions designed to increase the stability of patient dialysis: multimodal provider education (focused on training dialysis facility care teams) and patient activation intervention (focused on instructing and mentoring patients). The results will inform hemodialysis care providers on whether to pursue provider-focused or patient-focused safety interventions with the overall objective of making dialysis sessions safer for patients. Partners include the U-M Medical School, the School of Public Health's Kidney Epidemiology and Cost Center, the National Kidney Foundation, the Renal Research Institute, Fresenius Medical Care, and the Five Diamond Patient Safety Program.

Highlights of other recently funded grant proposals are:

- *Protecting the Future of Children's Online Identities*. Assistant Professor *Sarita Yardi-Schoenebeck's* NSF-sponsored research investigates how children's online identities are established and managed as they grow up, especially in the context of technologies that facilitate indexing and resurfacing of personal data into the future. It explores problems and issues that arise as a result of parents sharing personal information about their children on social media sites, children growing up with online identities shaped by others, and the difficulty of revising or removing what others have posted about them online. Generally, this work will cast a lens on children's online identities as part of a complex sociotechnical system that is formed and shaped by parents, extended familial and social networks, technology companies, policy makers, and children themselves.

- *Improving Data Quality in Citizen Science Projects*. Associate Professor *Carl Lagoze* received NSF funding to research the Cornell Lab of Ornithology's eBird database containing more than 70 million records of birdwatching observations entered mostly by amateur birdwatchers but also by scientists, naturalists, and researchers. The project focuses on calculating summary statistics from the database in an attempt to understand the dynamics of observer behavior based on factors such as expertise and length of involvement in eBird. The overall goal of the project is to gain a better understanding of citizen scientists' behavior and how to improve the quality of their observations through machine learning technology.

- *Ethical Access to Music Time in Africa* focuses on the preservation and dissemination of the radio program "Music Time in Africa," the oldest and longest-running radio program in English on the African continent, created by ethnomusicologist Leo Sarkisian in the early 1960s and broadcast by Voice of America (VoA). Legal constraints prevented the program from being heard in other parts of the world. In 2015, VoA transferred a collection of program recordings, scripts and live field recordings to the University of Michigan Library, where they became the Leo Sarkisian Archive. Funds from the National Endowment for the Humanities have enabled Associate Professor *Paul Conway* to digitize and disseminate Leo Sarkisian Archive materials online and to accomplish this ethically, engaging with African musicians, their descendants, and their communities on access preferences for their music and what it means to wider audiences and creating a culturally sensitive web-based distribution system.

- *A Day Without a Search Engine: An Experimental Study of Online and Offline Searches.* Given the popularity of online searching, the question arises as to how much time

people save by using search engines for their information needs, and the extent to which online search affects search experiences and outcomes. Professor *Yan Chen* received funding from NSF to conduct a real-effort experiment to compare online and offline search experiences and outcomes using a random sample of queries from a major search engine and a sample of reference questions from the Internet Public Library (IPL).

- *DSCoVAR: An Intelligent Tutoring System*. Associate Professor *Kevyn Collins-Thompson's* research is funded by the U.S. Department of Education. Its primary goal is to develop an intelligent tutoring system that addresses the challenges students have in acquiring literary words from written contexts. The study will recruit 6th, 7th, and 8th grade students enrolled in after-school programs for economically disadvantaged students in Atlanta, Georgia, and Pittsburgh. These students will participate in initial feasibility testing and the classroom delivery of the pilot tutoring system. Ultimately, Collins-Thompson and his collaborators at Georgia State University, Carnegie Mellon University, and University of Pittsburgh will test whether DSCoVAR leads to greater gains in vocabulary knowledge.

The strength of faculty scholarship is also demonstrated by the number of best paper and book awards garnered by UMSI faculty during the self-study period (Table III.12). A full list of all faculty awards and honorable mentions appears in appendix III.15.

Table III.12. Best Paper and Best Book Awards Earned by UMSI Faculty from 2010 to 2016

Faculty Name	Award	Year
Adar, Eytan	10-Year Most Influential Paper Award, Web Intelligence Conference	2012
Adler-Milstein, Julia	Outstanding Dissertation Award; Academy Health	2011
Adler-Milstein, Julia	Academy of Management Best Paper Proceedings, Best Health Care Management Theory to Practice Paper	2011
Collins-Thompson, Kevyn	ACM SIGIR Best Student-Led Paper: with K. Raman, P.N. Bennett	2013
Conway, Paul	Hugh A. Taylor Prize, Association of Canadian Archivists [Best Paper in *Archivaria*]	2013
Conway, Paul	Society of American Archivists (SAA) Fellows' Ernst Posner Award for best paper in *American Archivist*	2011
Cook, Eric	Best Poster Presentation Award: iConference 2014	2014
Edwards, Paul	Louis J. Battan Author's Award, American Meteorological Society, 2013, for *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*	2013
Edwards, Paul	Computer History Museum Book Prize for an "outstanding book in the history of computing, broadly conceived," awarded to *A Vast Machine* by the Society for the History of Technology Special Interest Group on Computers, Information, and Society	2011
Edwards, Paul	*A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* named a Science and Technology Book of the Year by *The Economist* and received the Atmospheric Science Librarians International Choice Award (History)	2010

Faculty Name	Award	Year
Finholt, Thomas	International Conference on Software Engineering, one of the three most influential papers, Herbsleb, J.D., Mockus, A., Finholt, T.A., & Grinter, R.E. (2001). "An Empirical Study of Global Software Development: Distance and Speed."	2011
Fontichiaro, Kristin	Top Ten Series Nonfiction, *Booklist*, *Makers as Innovators* Series	2014
Fontichiaro, Kristin	Best Professional Guide for School or Youth Librarians for Growing Schools: Librarians as Professional Developers Awarded by Library Media Connection and American Reference Books	2014
Fontichiaro, Kristin	Top Ten Project Books for Youth, *Booklist*, "Hacking Fashion: Fleece"	2016
Lagoze, Carl	Best paper award, Web of Linked Entities Workshop, Rio De Janeiro	2013
Markey, Karen	ALA's Library Instruction Round Table's (LIRT) chose "Will undergraduate students play games to learn how to conduct library research?" for its list of top 20 published instruction articles for 2009.	2009
Mei, Qiaozhu	Best Paper Award, WSDM 2016.	2015
Mei, Qiaozhu	Certificate of Recognition, 2010 SIGKDD Doctoral Dissertation Award. ACM SIGKDD.	2011
Newman, Mark W.	Computer Human Interaction (CHI) Best Paper	2015
Pierce, Casey	Best Paper Award; Academy of Management	2015
Pierce, Casey	Dordick Dissertation Award (Runner up), International Communication Association (ICA)	2015
Pierce, Casey	William H. Newman Dissertation Award; AOM (nominated on behalf of Organizational Communication & Information Systems division) Academy wide finalists announced in June	2015
Reinecke, Katharina	Computer Human Interaction (CHI) Best Paper Award	2013
Resnick, Paul	ACM SIGEC (Economics and Computation) 1st Annual Test of Time Award "The Social Cost of Cheap Pseudonyms" (published 2001)	2015
Resnick, Paul	Society for Teachers of Family Medicine Best Research Paper Award, Honorable Mention, for: Richardson, Caroline; Buis, Lorraine; Janney, Adrienne; Goodrich, David; Sen, Ananda; Hess, Michael; Mehair, Kathleen; Fortlage, Laurie; Resnick, Paul; Zikmund-Fisher, Brian; Strecher, Victor; and John Piette. "An online community improves adherence in an Internet-mediated walking program. Part 1: Results of a randomized controlled trial."	2012
Resnick, Paul	2010 ACM Software Systems Award	2011
Rieh, Soo Young	Best Information Behavior Paper Award, ASIST SIGUSE, "Social search behavior in a social Q&A service: Goals, strategies, outcomes"	2015
Rieh, Soo Young	ASIST SIGUSE Best Information Behavior Poster Award with Ji Yeon Yang, "Dual Roles in Information Mediation at Work: Analysis of Advice receiving and Advice providing Diary Surveys."	2012
Rieh, Soo Young	John Wiley Best JASIST Paper Award co-authored with Jim Jansen, "The seventeen theoretical constructs of information searching and information retrieval."	2011

Faculty Name	Award	Year
Rieh, Soo Young	American Society for Information Science and Technology (ASIST) 2010 Best Conference Paper Award for "A Diary Study of Credibility Assessment in Everyday Life Information Activities on the Web: Preliminary Findings." Co-authored with Yong-Mi Kim, Ji Yeon Yang, and Beth St. Jean	2010
Romero, David	WWW 2016 Best Paper Award	2015
Sandvig, Christian	SIGCHI Conference on Human Factors in Computing Systems Best paper: Eslami, M., Rickman, A., Vaccaro, K., Aleyasen, A., Vuong, A., Karahalios, Hamilton, K., & Sandvig, C. "I always assumed that I wasn't really that close to [her]": Reasoning about invisible algorithms in the news feed.	2015
Toyama, Kentaro	Association of American Publishers Award in Business, Finance and Management category for *Geek Heresy*	2016
Veinot, Tiffany	American Medical Informatics Association (AMIA) "Year in Review" Annual Symposium highlighted "A question of trust."	2014
Veinot, Tiffany	Outstanding Paper Award, Journal of Documentation, Literati Network Awards for Excellence 2011	2011
Yakel, Elizabeth	International Digital Curation Conference Best Research Paper Award for "Trust in Digital Repositories" with Ixchel Faniel, Adam Kriesberg, and Ayoung Yoon	2013
Yakel, Elizabeth	iConference, Best Paper Award with Morgan Daniels, Ixchel Faniel, and Kathleen Fear	2012

Faculty are active in a variety of professional and scholarly organizations beyond presenting their research. This service includes leadership. For example, Yan Chen is president of the Economic Science Association and Paul Edwards serves on the Advisory Board for the Climate Code Foundation. Faculty are serving or have served on the editorial boards of major library and information science journals, such as *Archival Science*, the *Journal of the American Society for Information Science and Technology*, *Teacher Librarian, Book Links, School Library Monthly, Library Hi Tech, Journal of Artificial Intelligence Research*, and *ACM Transactions on Information Systems* (TOIS) and act as reviewers for many others including *Information Processing and Management, New Media and Society*, *Management Science*, and *Information Systems Research*. Faculty also participate on conference program committees, particularly for Computer Human Interaction (CHI), the Special Interest Group on Information Retrieval (SIGIR), the Conference on Human Information Interaction and Retrieval (CHIIR), International AAAI Conference on Weblogs and Social Media (ICWSM), and the iConference. Finally, faculty serve as reviewers for granting agencies in the United States (NSF and IMLS) and internationally, the Netherlands Organization for Scientific Research (NWO) and the Social Science and Humanities Research Council (Canada)). A full list of faculty involvement in professional and scholarly organizations appears in appendix III.16.

UMSI faculty supervise MSI students on faculty research projects and mentor students researching master's theses. With regard to the latter, the Master's Thesis Option Program has been in existence since 2003. It has infused more research into the master's curriculum and increased the synergy between research and teaching. Table III.13 lists faculty advisers and the diverse set of master's theses they have supervised. See standard II.3b for additional discussion.

Table III.13. Master's Theses Supervised by UMSI Faculty

Year	Student	Faculty Advisor	Thesis Title	Current Career Title	Current Career Organization
2015	Jean Hardy	Cliff Lampe & Nicole Ellison	Finding Community, Finding Sex: Navigating Disclosure, Geography, and Privacy in Rural Use of a Social Technology for Gay Men	PhD Student	UMSI
2015	Ashley Walker	Sarita Yardi Schoenbeck	Physical and Digital Infrastructure: Using Offline Frameworks to Understand Online Platforms	PhD Student	Northwestern University, Media, Technology, and Society
2014	Priya Kumar	Sarita Yardi Schoenbeck	A Digital Footprint From Birth: New Mothers' Decisions to Share Baby Pictures Online	Research Analyst	New America, Ranking Digital Rights Project
2013	Jarrett Drake	David Wallace	Documenting Detention: Records of Segregation in Two U.S. State Prisons	Digital Archivist	Princeton University Library
2013	Jessica Schaengold	Elizabeth Yakel	Archival Management Systems and Workflow: Alignment and Expectations	Digital Archivist	US Government
2013	Chris Wolf	Tiffany Veinot	On My Own Terms: Everyday Information Use of Patients with Chronic Conditions	Co-op Researcher	IBM
2012	Rebecca Frank	Beth Yakel	Disaster Planning for Digital Repositories	PhD Candidate	UMSI
2010	Sanam Arab	David Wallace & June Thomas	Records in Education	Manager, Programs and Patron Services	U-M, LSA Instructional Support Services
2010	Jacob Solomon	Mark W. Newman	Real-time text and IM	PhD Candidate	Michigan State, Department of Media and Information
2010	Amanda Visconti	Paul Conway	Songs of Innocence and of Experience	Assistant Professor	Purdue, Department of English

III.6

The faculty hold advanced degrees from a variety of academic institutions. The faculty evidence diversity of backgrounds, ability to conduct research in the field, and specialized knowledge covering program content. In addition, they demonstrate skill in academic planning and assessment, have a substantial and pertinent body of relevant experience, interact with faculty of other disciplines, and maintain close and continuing liaison with the field. The faculty nurture an intellectual environment that enhances the accomplishment of program objectives.

Appendix III.2 lists the degrees and disciplines of UMSI's tenure-track faculty, research professors, clinical professors, and full-time lecturers III and IV. Faculty possess many different degrees although these can be categorized into two primary areas: computer science (17) and library and/or information science (12). Other areas are economics (4), communication (3), psychology (2), history (2), and business administration (2).

Faculty are adept at academic planning and assessment. Appendix II.4 presents all MSI course syllabi. Each has specific learning objectives and a description of class sessions. Many also indicate the types of activities and assignments faculty think will achieve the learning objectives. In terms of assessment, faculty engage in a number of different types of assessment of their own courses. In addition to the end-of-term evaluations and CRLT teaching observations discussed in standard III.4, many faculty do weekly or bi-weekly evaluations. For example, as each class period comes to a close, Assistant Professor Casey Pierce gives students index cards on which she asks them to respond to three questions: (1) what was your main take-away from today's class?, (2) what did you find confusing?, and (3) what changes would you like to see in the class? This is a simple but effective way to assess student learning as well as classroom management issues. Through the program committees, such as the MSI Program Committee, faculty engage in program-wide assessment and use data to assess whether the program is meeting its learning objectives. One of the impetuses for curriculum reform was an analysis and assessment of the MSI curriculum presented in standard II.1b.

The diversity of UMSI's faculty is boosted by joint appointments. There are two aspects to such appointments. First, our faculty have joint appointments with 12 other units on campus, primarily in computer science (6) and public health (3) (Table III.14). Second, faculty in other U-M schools and colleges have sought and established joint appointments with UMSI (Table III.14).

Table III.14. UMSI Faculty with Joint Appointments in other Units

Name	Joint Appointment Unit Outside UMSI
Ackerman, Mark	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
Adar, Eytan	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
Adler-Milstein, Julia	School of Public Health, Health Management & Policy
Blouin, Francis	College of Literature, Science, & the Arts: History
Chen, Yan	Research Center for Group Dynamics
Collins-Thompson, Kevyn	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
Edwards, Paul	College of Literature, Science, & the Arts: History
Ellison, Nicole	College of Literature, Science, & the Arts: Communication Studies

Name	Joint appointment Unit Outside UMSI
Fishman, Barry	School of Education
Friedman, Charles	Medical School and the School of Public Health
Hedstrom, Margaret	Institute for Social Research
Hilton, James	University Library and Institute for Social Research, Research Center for Group Dynamics, Faculty Associate
Klasnja, Predrag	School of Public Health: Health Behavior & Health Education
Lindtner, Silvia	School of Art and Design
Mei, Qaiozhu	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
Newman, Mark W.	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
O'Modhrain, Sile	School of Music, Theatre & Dance
Pollack, Martha	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
Radev, Dragomir	College of Engineering Electrical Engineering and Computer Science: Computer Science Division College of Literature, Science, & the Arts: Linguistics
Romero, Daniel	College of Literature, Science, & the Arts: Complex Systems
Rosenblat, Tanya	College of Literature, Science, & the Arts: Economics
Sandvig, Christian	College of Literature, Science, & the Arts: Communication Studies
Veinot, Tiffany	School of Public Health: Health Behavior & Health Education

Faculty appointed in the School are joined by colleagues from other U-M schools and colleges who have courtesy appointments at UMSI because of synergies with our faculty in research or teaching endeavors. Many of these individuals are leading scholars in their fields. Courtesy appointments increase our School's interdisciplinarity and lead to interesting research and teaching teams. Table III.15 lists faculty with courtesy appointments along with their primary and other appointments.

Table III.15. Faculty with Courtesy Appointments in UMSI

Faculty member	Primary Appointments and (Other Appointments)
Abney, Steve	College of Literature, Science, & the Arts: Linguistics; College of Engineering
Courant, Paul	Gerald Ford School of Public Policy; College of Literature, Science, & the Arts: Economics; (formerly University Librarian)
Friedman, Charles	Medical School: Department of Learning Health Sciences; School of Public Health
Hanauer, David	Medical School: Pediatrics: Ambulatory Care Program
Johnson, Lynn	School of Dentistry
Lasecki, Walter	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division
Litman, Jessica	Law School
Masatlioglu, Yusuf	College of Literature, Science, & the Arts: Economics
Samson, Perry	College of Engineering: Climate and Space Sciences and Engineering
Soloway, Elliot	College of Engineering: Electrical Engineering and Computer Science: Computer Science Division; School of Education
Vydiswaran, Vinod	Medical School: Department of Learning Health Sciences

Another way in which a diversity of perspectives permeates student learning is through co-teaching. UMSI faculty *Kristin Fontichiaro* and *Kentaro Toyama* have co-taught one of the foundations courses, *Contextual Inquiry and Consulting Foundations* (501). The combination of one instructor who specializes in learning and youth and an other who helped define the field of information and communication technology for development (ICT4D) adds dynamism and synergy to the curriculum. In another example, *Paul Edwards* and *Silvia Lindtner* have taught the UMSI cross-listed course *Knowledge/Power/Practice in Science, Technology, and Medicine* (719) with faculty from the U-M's History Department. Co-teaching enables faculty to integrate new ideas into their teaching and exposes students to different perspectives on key topics in information science.

UMSI's intellectual environment is stimulating (for a full list see Table III.7). There are many opportunities for faculty to share their research with each other and engage with top scholars in a wide range of fields and disciplines. These venues include Wednesday faculty research talks, Michigan Interactive and Social Computing (MISC) seminar series, and Social, Behavioral and Experimental Economics (SBEE) lab talks. For many years, faculty research talks have been held on Wednesdays during lunch so faculty could hear about their colleagues' work. In these talks and the ensuing discussions, faculty engaged in substantive discussions on research topics and methodological issues. This forum resulted in many collaborations as faculty recognized synergies with their colleagues. MISC and SBEE offer a mix of UMSI faculty, doctoral students, and outside speakers and thus is a forum for intellectual exchange as well as mentoring of junior faculty and doctoral students. MISC and SBEE talks are open to the entire UMSI learning community. This intellectual life is also extended into the classroom, Table III.8 provides examples of the ways MSI students are exposed to new ideas, pedagogies, and engaged learning in the classroom.

UMSI faculty maintain close and continuing liaison with information professionals in the field on a regular basis. Table III.16 demonstrates that the scope of their activities in this regard is rich and multifaceted, addressing the full spectrum of teaching, research, and service.

Table III.16. UMSI Faculty Engagement with Practitioners

Course, Program, or Instructor	Description
Teaching: Invitations to Practitioners to Give Guest Lectures in these Courses	
Information and Control (523)	Global CIO Ed Happ (International Red Cross and Red Crescent Societies) briefs students on information communication technologies and development.
Citizen Interaction Design (538)	Local elected officials, staff from the Michigan Municipal League, UX professionals, and civic tech developers meet with students.
Privacy in Information Technology (540)	Jeanne Strickland, UMHS Chief Compliance Officer, Privacy Director & HIPAA Officer, U-M, addressing privacy at the academy.
Transformative Learning & Teaching with Technology (549)	Director Josh Williams (All Hands Active, Ann Arbor) on makerspaces.
Preservation Administration (581)	Digital Preservation Librarian Lance Stuchell (U-M Library).
Introduction to Interaction Design (582)	UMSI alum Matt Martin briefs students on his career path that includes his current position as JStor's Lead Interaction Designer.

Course, Program, or Instructor	Description
Teaching: Invitations to Practitioners to Give Guest Lectures in these Courses	
Data Manipulation (601) and *Data Manipulation and Analysis* (618)	Data science practitioners give talks about their research and product development, punctuated by a question-and-answer session for students whose questions range from challenges in machine learning to career options in data science.
Collection Development (620)	Practitioners from academic, public, school, and community college libraries address collection development specifics in their libraries. Experts in copyright, international collecting, and collection management fill in the gaps.
Digital Preservation (625)	Video conference panel featuring digital curation leaders from the UK, such as Open Planet Foundation's director and the Head of the British Library's digital preservation unit, demonstrating to students that the course's theoretical ideas have practical and immediate relevancy and on an international basis.
Information Resources and Services (647)	Practitioners from academic and public libraries discuss virtual reference, electronic reference sources, and evaluation of sources.
Organization of Information Resources (666)	Associate Librarian Evyn Kropf (U-M Libraries) demonstrates local and shared cataloging, covering the wide variety from mainstream publications to priceless Islamic manuscripts.
Teaching: Classes Making Field Trips to Information-Intensive Organizations	
Preservation Administration (581)	Tours and demos of the Department of Preservation, Department of Conservation, and Digital Conversion Unit, U-M Library.
Collection Development (620)	A tours and tutorial at a school library in Ann Arbor.
Understanding Records and Archives (580)	Tour and demo at the Bentley Library (the U-M's campus archive).
Teaching: Contributions from Practitioner-Based Institutions and Organizations	
Digitization for Preservation (675)	Image scientist Don Williams (Image Science Associates, Rochester, NY) presented an imaging software tutorial, provided software for the class to use, and gave advice to students on the technical literature used in class.
Digitization for Preservation (675) and *Preserving Sound & Motion* (678)	U-M Library provides space and equipment for the course's teaching lab, collections for students to study, and frees up staff to give curatorial advice.
Teaching: Practitioners Serving as Consultants, Mentors, Advisors, Clients, Judges, or Clients	
Contextual Inquiry and Consulting Foundations (501)	With over 200 students enrolled in the course each year working in groups of four, the course routinely engages with over 50 practitioners and works with them to address information challenges they have in their organizations. Many clients volunteering projects are UMSI alumni.
Information Literacy for Teaching and Learning (641)	Practitioners serve as mentors during instructional practicum experiences.
Information Architecture (658)	Students can rely on Adjunct Professor Daniel Klyn's 20 years of professional experience to provide a case-in-point from past work with real clients, and his experience as president of the 501(c)(6) "board of trade" for the practice of information architecture (IA) enables him to be effective pairing up MSI students with internships and job interviews in a wide range of IA practice areas.

Course, Program, or Instructor	Description
Teaching: Practitioners Serving as Consultants, Mentors, Advisors, Clients, Judges, or Clients	
GIEP	In 2016, students consulted archivists at the University of the Western Cape's Robben Island Museum Mayibuye Archive and two key anti-apartheid activists to develop and test the viability of a collections processing manual that adheres to professional best practices and is customized to the unique context of an archive that has been developed since apartheid's 1990 collapse.
CID	Student teams are paired with a community partner who works actively with the team throughout the semester to better understand the problem area, staff-community capacity, and sustainability of potential products. Also, a panel of professionals participates in a civic tech expo in the partner community, giving students feedback on their projects.
UX Design Clinic and Entrepreneurship in the Information Industry (663)	Entrepreneurship Program staff encourage professionals who see a potential area of impact to record a short video describing its content and challenges but not solutions. Students choose the most interesting videos, and their authors pitch out. Students are matched with their top preferences and work with professionals who serve as project sponsors, available for interviews, feedback, and take charge of final project deliverables. Staff invite senior innovators, entrepreneurs, and venture capitalists to make up a panel of UX Designers for 663's midterm and its final critique sessions.
Innovation Trek	Student teams travel to New York City visit half a dozen innovation groups in for- and non-profit companies and accelerators. At each visit, teams meet with an innovator representative who listens to the team's project pitch (prepared in workshops leading up to the trek) and engages in a discussion around their project.
Research: Opportunities to Engage with Practitioners	
Associate Professor Paul Conway's IMLS-sponsored research	His "Validating Quality in Large-Scale Digitization, Metric, Measurement, and Use Cases" has established a working collaboration with the HathiTrust staff and administrators to research HathiTrust quality issues, and appointed practitioners to the project's advisory board.
Professor Barry Fishman's Gates Foundation-sponsored research	His "Game-Based Formative Assessment Designs and Practices" works with K-12 practitioners on the design and implementation of educational innovations.
Associate Professor Kevyn Collins-Thompson's Department of Education-sponsored research (DSCoVAR)	DSCoVAR educators and psychologists at U-M and Georgia State University collaborate with after-school programs in Atlanta and Pittsburgh to develop tutoring technology to help middle school students improve literacy skills.
Assistant Professor Silvia Lindtner's NSF-sponsored research	Her collaboration with David Li, director of the Shenzhen (China) Open Innovation Lab, includes research and publications and funding from his lab for her to give lectures and to attend policy meetings there.
Assistant Professor Lionel Robert's three grants on human autonomous vehicle interaction	His grants require regular collaboration with industry partners such as Toyota, Intel, Nissan, and the U.S. Army TARDEC.

Course, Program, or Instructor	Description
Research: Opportunities to Engage with Practitioners	
Research Fellow Patricia Garcia's IMLS-sponsored research	Her investigation tests a low-resource model for promoting culturally responsive computing programs in public libraries and involves collaboration with librarians at Ypsilanti (MI) District Library, Tempe (AZ) Public Library, and Imperial County (CA) Free Library.
Professor John King's NSF-sponsored research	His projects "Managing Cyberinfrastructure Centers in a Demanding Era" and "Research Collaboration Network in Managing Cyberinfrastructure," both ending in workshops to help practitioners manage cyberinfrastructure services effectively.
Service: Advisory Boards, Organizing Professional Events, Committees, Standards Development	
Research Professor Stephanie Teasley	She serves on the advisory boards of five grants along with teachers (K-12) and university instructors (higher education) to inform research and development that is feasible and scalable in classroom practices.
ALA Student Chapter	Regularly invites practitioners to serve as their (QuasiCon) conference's keynote speaker, such as Jane Blumenthal, Associate University Librarian & Director, Taubman Health Sciences Library, in 2014; Eli Neiburger, Ann Arbor District Library Deputy Director, in 2015; and Jen Taggart, Assistant Department Head of Youth, Bloomfield Township Public Library, Bloomfield Hills, Michigan, in 2016.
Assistant Professor Florian Schaub	His invited presentations on usability and human factors aspects regarding privacy in technology draws industry partners, information technology practitioners, and government policymakers (e.g., Federal Trade Commission's Workshop "Putting Disclosures to the Test," European Symposium on Computational Methods, and Federal Trade Commission's Privacy Conference). He is also a co-organizer of the Dissonance Speaker series that regularly invites practitioners from a variety of disciplines.
Associate Professor Kentaro Toyama	His service on the board of several non-profits—Digital Green, Humanosphere, Innovations for Poverty Action, Village Health Works—involves interaction with other board members and non-profit leadership to improve these organizations' information- and communication-related activities. He is also co-founder of the International Conference on Information and Communication Technologies and Development that provides a platform for researchers and practitioners to interact for the purpose of improving the use of digital technologies in the context of international socioeconomic development.
Professor Elizabeth Yakel	She is a member of the Joint (ALA/SAA) Task Force on the Development of Standardized Statistical Measures for Public Services in Archival Repositories and Special Collections that is developing a new standard defining appropriate statistical measures and performance metrics to govern the collection and analysis of statistical data for describing public services provided by archival repositories and special collections libraries.
Assistant Professor Tawanna Dillahunt	She serves on the Inova Energy Group's Technical Advisory Committee for the project "Capturing Cultural Diversity in California Residential Energy Efficiency Potential: An Energy Ethnography of Hispanic Households." Since 2015, she has also provided free consulting to NeighborFix, a Detroit-based startup, that promotes neighbors doing tasks for one another.

III.7

Faculty assignments relate to the needs of the program and to the competencies of individual faculty members. These assignments assure that the quality of instruction is maintained throughout the year and take into account the time needed by the faculty for teaching, student counseling, research, professional development, and institutional and professional service.

As previously mentioned, faculty teach across all UMSI degree programs. Assignments are made on the basis of faculty expertise, faculty availability, expected course enrollment, load balancing (one faculty member would rarely teach two large courses), and faculty preferences. Over the course of the self-study period, we have made several improvements to the teaching assignment process that have enabled us to better plan course offerings to meet the needs of students' academic plans. We initiate course planning in winter for the entire next academic year and make notes for reference to guide us in course planning in the following academic year. For example, our planning for the 2016-2017 academic year is now complete and we have a sketch for the 2017-2018 academic year.

Reorganization of the Dean's Office in 2012 led to one of the biggest positive changes in the process of course planning. The position of assistant dean of academic and student affairs (ADASA) was added to the Leadership Team (LT). This assistant dean reports to the associate dean for academic affairs (ADAA) and takes the lead in course scheduling. This enables information from the Office of Student Affairs (OSA) concerning academic plans, course enrollments and demand, and prerequisite structures to flow more easily into the scheduling process through the assistant dean while the associate dean adds information about faculty expertise and preferences. In addition, the assistant dean and associate dean consult with specialization coordinators to make sure the courses offered meet the needs of the academic plan for the specialization. These deans also speak to individual faculty to make sure their needs are considered. When the future MSI curriculum is fully rolled out, these deans will follow this same procedure and supplement it with an annual course-planning survey of the faculty to make sure we have considered faculty needs in terms of other commitments such as student supervision and counseling, research grants, professional development, and institutional and professional service.

III.8

Procedures are established for systematic evaluation of all faculty; evaluation considers accomplishment and innovation in the areas of teaching, research, and service. Within applicable institutional policies, faculty, students, and others are involved in the evaluation process.

UMSI engages in multiple types of mandatory faculty evaluation that are the discussed in detail in other sections of this self-study. Table III.17 enumerates faculty evaluation types and the standards in which each type is described.

Table III.17. Faculty Evaluation Types

Evaluation	Faculty Appointment Covered	Evaluators	Standard
Faculty Annual Review (FAR)	All	Dean and associate deans	I.3 and I.4.1
Third-year review	Tenure-track	P&T	III.2a
Promotion and tenure review	Tenure-track	P&T	III.2a
Course evaluations	All	Students	III.4
Classroom observations	Lecturers I–IV	Selected faculty and ADAA	III.4

In addition to the faculty evaluations, the dean and associate deans are also evaluated. There are three mechanisms for evaluating the dean. First, the dean reports to the provost who conducts a yearly evaluation of each dean. Second, one of the specific duties of the DAC is to conduct a yearly evaluation of the dean in May. This has typically been done through an anonymous survey. Only the dean sees the results. Third, the University of Michigan Faculty Senate's Administration Evaluation Committee (AEC) conducts an annual evaluation of all top U-M administrators from the president to the deans and the associate deans (see http://aec.umich.edu/). The results of the AEC evaluation are openly available to all employees of the University. These evaluations provide feedback to the dean about his performance as well as about the climate of the School and the University as a whole.

III.9 The program has explicit, documented evidence of its ongoing decision-making processes and the data to substantiate the evaluation of the faculty.

Every committee takes minutes which are stored on secure UMSI servers to preserve organizational memory. For example, the DAC makes many faculty-related decisions. The assistant to the dean is the DAC's note taker, and the minutes of DAC meetings are maintained historically in the Dean's Office. In the past, this meant storing minutes on paper in secure filing cabinets that were physically located in the Dean's Office, but currently it means storing minutes online in secure file servers accessible to the deans and their administrative assistants. Prior to each DAC meeting an agenda is sent to all faculty. Faculty may propose topics and this is done through their elected representatives or on a form only seen by the representatives. Data about faculty evaluations are also maintained historically in the Dean's Office, and this involves FARs and the dean's annual letter to each faculty member that is a record of his response to each faculty member's FAR. Third-year reviews are documented in the candidates' dossiers that are submitted for review along with the P&T subcommittee report to the full P&T, DAC, and dean. Promotion and tenure reviews are documented through the candidates' dossiers, P&T subcommittee reports, as well as through the extensive casebook and dean's letters prepared for the provost and the regents. Course evaluation information is maintained historically in the Dean's Office as are classroom observations of lecturers by faculty.

Each of the four program committees (MSI, MHI, PhD, and BSI) also takes minutes. This year, we also instituted a practice of an actions document for each committee so that decisions and actions that affect program rules, advising, etc. could easily be retrieved and acted upon.

UMSI also has regularly scheduled monthly faculty meetings. Faculty are asked to propose agenda items in advance and the agenda and any prior reading materials are circulated prior to the meetings. The assistant to the dean takes minutes at all faculty meetings, and these minutes are available to all faculty through the UMSI Intranet (currently on Google Drive). These are stored on secure servers and available as reference to the LT and the faculty. UMSI also has special faculty meetings and retreats. Special governing faculty meetings are called during the hiring season to vote on candidates for faculty positions. Retreats are periodically called to discuss strategic planning for the school or the curricular issues in one of the academic programs. More recently we have not held retreats, but have extended the faculty meeting to one or two hours to discuss larger issues. This was done several times over the past year to discuss MSI curriculum reform.

This proved to be a more efficient and effective mechanism to engage the entire faculty in a timely manner so the MSI Program Committee could continue its progress.

III.10 The program demonstrates how the results of the evaluation of faculty are systematically used to improve the program and to plan for the future.

The dean's feedback is an important element of the annual FAR. In response to each faculty member's FAR submission is detailed feedback describing excellent, adequate, or poor performance. Dean Finholt has taken an especially detailed and direct tact in feedback letters to highlight faculty areas of strength and weakness. FARs and feedback letters can then be revisited in subsequent reviews to assess faculty development over time. Untenured faculty and lecturer IIIs and IVs meet individually with the dean and associate deans several times a year. These regular check-in meetings are an important source of informal feedback and mentoring. For tenure-track faculty, more formal feedback is given after the third year review when they are told whether they are on track for tenure and what adjustments they need to make to strengthen their tenure packages. Lecturers also receive explicit feedback in regularly scheduled reviews which are mandated by the LEO contract and the annual classroom observation.

In addition to individual-level feedback that results in individual changes, information from faculty evaluation is addressed on a programmatic level. Common themes typically emerge from the deans' analysis of the teaching goals faculty put into their FARs, and the deans use this analysis to plan for teaching workshops, choosing themes that respond to areas needing improvement by many faculty or areas of common concern. For example, as the number of international students has increased, faculty have struggled with intercultural issues and how to support students from different cultures. In response, the ADAA organized a teaching workshop on intercultural issues in the classroom.

Standard IV

Standard IV STUDENTS

IV.1

The program formulates recruitment, admission, retention, financial aid, career services, and other academic and administrative policies for students that are consistent with the program's mission and program goals and objectives. These policies include the needs and values of the constituencies served by the program. The program has policies to recruit and retain students who reflect the diversity of North America's communities.

(Responses to this standard are split into separate discussions IV.1a to IV.1d below.)

IV.1a

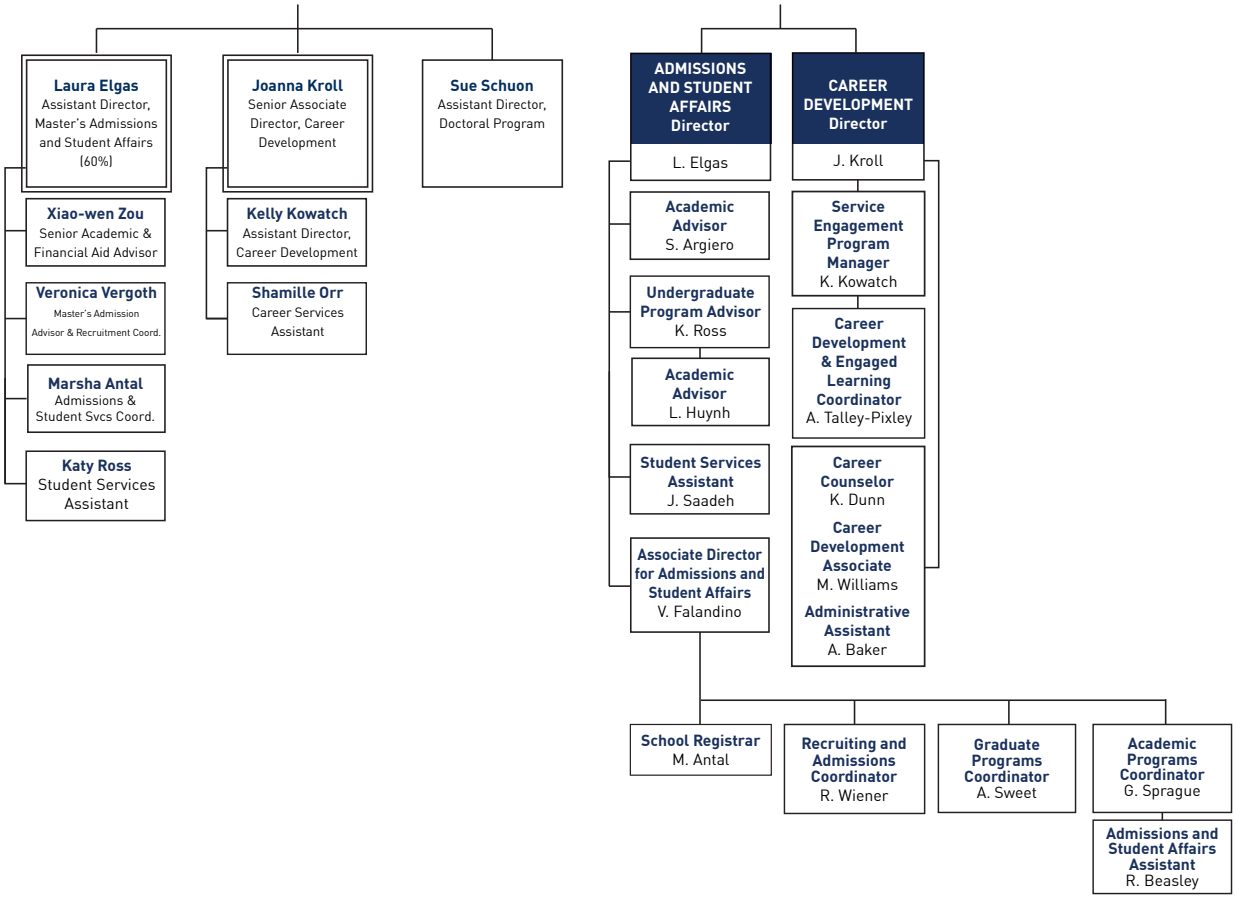
The program formulates recruitment, admission, retention, financial aid, career services, and other academic and administrative policies for students that are consistent with the program's mission and program goals and objectives.

The academic and administrative policies of the University of Michigan School of Information (UMSI or the School) reflect a commitment to delivering quality professional education and training students to be leaders and agents of change in a field that is evolving at unprecedented speed. By affording considerable flexibility combined with substantial academic advising and expert career guidance along with significant community engagement as part of the learning experience, students are given the tools to meet these challenges. Policies also reflect UMSI's interdisciplinary approach and our continuing tradition of service, leadership, research, and access as we prepare leaders for the information age. Our commitment to practice cuts across policies that guide our work in recruitment, admissions, financial aid, placement, and other academic and administrative policies.

UMSI students are supported by the Office of Student Affairs (OSA) and the Career Development Office (CDO). These offices in turn report to the assistant dean for academic and student affairs (ADASA) who reports to the associate dean for academic affairs (ADAA). Both OSA and CDO have increased in staff and have expanded responsibilities since the 2010 accreditation self-study. The comparison of the organizational charts from 2010 and 2016 in Figure IV.1 shows an increase from nine to 17 staff. This is due to both the growth in the number of UMSI's academic programs offered by UMSI as

well as the need to work on strategic initiatives, such as engaged learning. The chart also demonstrates deeper expertise in all areas of admissions, recruitment, academic advising, and career counselling. All OSA and CDO staff share common values for student-centered practice, supporting diversity and inclusion, and creating seamless handoffs across service areas. For the full UMSI Organizational Chart see appendix V.2.

Figure IV.1: Comparison of Office of Student Services Organizational Charts from 2010 (left) and 2016 (right)



As noted in standard I.1.1, the first goal of the MSI Program is to "Recruit, admit, and yield a student body that is invested in the UMSI mission, is prepared to take advantage of the learning opportunities at UMSI, forms a diverse and valuable cohort for each other, and meets the quality expectations of the faculty." Here we briefly describe how each of these activities specifically support the objectives of the MSI Program.

Recruitment

OSA staff deploy a robust recruitment program for the MSI that reaches over 50,000 prospects annually and targets a selective and diverse set of prospective students. OSA invests in active outreach to underrepresented populations and publicizes to undergraduates as well as to working professionals to actively recruit individuals with a commitment to service and with demonstrated leadership potential. Our recruitment practices include efforts to provide admitted students with opportunities to build a deep understanding of the MSI Program to determine if we are the best fit for their graduate education.

Admission

The MSI Program welcomes applications from all undergraduate majors. It does not have a technology requirement for admission. This enables UMSI to admit non-technical students who bring diverse ideas, creative approaches, and strong potential for professional success into the MSI and provide them with opportunities to build technology skills during their program. Our holistic application review and decision policy, in which all components of an application are fully reviewed and considered as a full package, ensures that each application is carefully evaluated in view of our mission and admission standards.

Financial Aid

UMSI's financial aid policies are aligned with federal and state laws while reflecting the School's mission and program goals. Our scholarship policies are shaped to support our desire to attract diverse students who bring strengths that align with our mission to prepare future leaders, and so we offer strong funding packages that help support this goal. Applicants are evaluated not only for admission but also for scholarships. Thus, as applications are reviewed, a rubric is followed to indicate recommendations for admission as well as level of strength for scholarship awards. OSA staff assemble data on scholarship recommendations and propose a set of first round awards that is reviewed by faculty on the MSI Program Committee for approval. We uphold the common April 15 deadline for first round scholarship decisions, then issue a second round of offers (with specific deadlines for award acceptance), and often a much smaller third round.

Scholarships are offered based on broad criteria that indicate a student's abilities, interests, and professional goals and are in keeping with the MSI Program's mission and objectives. We do not consider a student's residency status (in-state vs. out-of-state), the award amount is set to either cover in-state or out-of-state tuition levels. As such the award is not given as a dollar amount but as, for example, four terms of half tuition funding. We avoid giving one year of funding and instead prefer to spread it over the four terms of the program, to help students have an even level of support as they complete the program.

Selected students are then matched with available monies from UMSI's general fund or from targeted alumni endowed funds. Funds totaling $2.77 million ($1.54 million from general funds and $1.23 million from endowed scholarship funds) provide roughly one-quarter (25%, typically 40-50) of incoming MSI students to receive varied levels of scholarship funding from UMSI. Scholarships range from assistantships and fellowships covering the cost of attendance in full, to full or half tuition scholarships. It is our policy to award all scholarship funds as students enter the program. While we offer matching funds for external awards students receive through the first year of their program, we feel strongly that providing students with a full and clear picture of their financial status is important, and avoids students counting on future funding that then does not materialize. Financial aid is also discussed in standards IV.3d and V.8b.

Career Services

CDO provides professional in-house career services to students seeking traditional professional positions as well as those pioneering new career paths and issue areas. Our full complement of career development services serves students not only in securing their first job, but navigating their career for a lifetime. The CDO Practical Engagement Program (PEP) policies help to ensure all students integrate classroom learning with real world experience. PEP is a required part of the MSI Program's current and future

curriculum and is also aligned with admission policies that allow students with great potential to gain the skills and experience needed at UMSI to launch their information career.

Other Academic and Administrative Policies

The MSI Program has a number of policies that impact students; all are in the *Master of Science in Information Student Handbook* (appendix IV.1) and are formulated with student needs and interests in mind while supporting the mission and standards of the School.

The MSI degree provides a multifaceted and integrated professional education. Under the current curriculum, all MSI students must fulfill the same program requirements, and although specialization requirements vary, students can choose from a varied menu of specialization-specific courses to shape their academic plans. Course offerings in the MSI Program are accessible to all master's students and provide learning opportunities across a wide spectrum of interest areas. UMSI's flexible approach supports students in developing academic plans that maximize learning and growth. For example, a sequence of increasingly advanced technology courses is available to all students but for students who have strong technology backgrounds, initial course(s) in the sequence may be waived. The result is a supportive and accessible atmosphere that ensures students acquire important technology skills that will successfully launch and steer their professional careers. Students may petition to modify any degree requirement to best achieve their academic goals, such as petitioning to take an additional cognate course (i.e., a course from another department or school).

UMSI's advising and course scheduling policies encourage students to develop the cutting-edge skills they need to pursue their areas of interest and career goals. Exemplary in this regard is the Tailored degree option that enables students to craft academic plans that blend key interests or forge new paths towards emerging career opportunities. Additionally, the Master's Thesis Option Program (MTOP) opens doors to students with strong research interests to discover new knowledge in the course of completing a research thesis under the guidance of a faculty advisor. Master's students can also immerse themselves in research by attending faculty-led research meetings, enrolling in independent study courses, working part-time on faculty research projects, and applying for and receiving research assistantships.

IV.1b These policies include the needs and values of the constituencies served by the program.

The primary constituencies served by the MSI Program are admitted students and the organizations that employ them for internships and upon graduation. The MSI Orientation Evaluation and the MSI Student Surveys over the past years have consistently asked students to disclose the primary reasons or factors why they enrolled in UMSI. (See appendices IV.2 and IV.3 for blank copies of these surveys.) While the excellent academic reputation of both the U-M and UMSI and their highly regarded faculty have always been the top two responses, other factors are the areas of study offered, opportunities for internships and practical experiences, communication with the admissions staff, career services and career opportunities after graduation, and communication with UMSI students. In the periodic CDO Employer Surveys and short surveys filled out by employers/mentors at the conclusion of internships, employers assert that their needs and values are met through the MSI Program. (See appendices IV.4 and IV.5 for blank copies

of these surveys.) Of the 247 internship mentors surveyed during the 2015-2016 academic year, 100% reported that the UMSI intern they employed made valuable contributions to their organization. Asked to rate the quality of work performed, 91.7% of mentors specified the quality of the intern's work as "very good" or "outstanding," and 100% indicated they would mentor a UMSI student in the future.

In the 2016 CDO Employer Survey, 65 employers of MSI graduates were surveyed about the MSI graduates they hired, yielding a 40% response rate. Here are the results:

- 92% characterize MSI graduates as change agents/leaders in the field
- 70% feel that MSI students excel at project management
- 100% would hire MSI graduates in the future
- 100% assert that MSI graduates have developed in ways that their organization values. Examples of these ways are the ability to embrace a diversity of perspectives, solid written and verbal communication skills, strong team leadership and membership capabilities, deep understanding of technology trends, strong technical and user needs evaluation skills, and the ability to respond to change and uncertainty.

In their own words, employers underline how UMSI prepares students to hit the ground running in their organizations:

- *"These students are leaders in understanding the complex landscape of libraries, archives, and digital asset management."*
- *"MSI students are very prepared to work in the digital realm."*
- *"My years of recruiting MSI grads have resulted in tremendous value and impact on our organizational needs. Keep up the good work!"*
- *"I will continue to hire interns and permanent hires from MSI!"*
- *"MSI students are smart. They know how to bring what they are learning in the classroom and apply them in a professional work setting very well."*

Overall, employers cited MSI graduates' strong communication skills, although some concerns were raised with regard to international students, suggesting that they improve their verbal communication skills and professional presentation "polish." As the MSI international student population has grown significantly in recent years, OSA has responded by designing and deploying specific career and professional development workshops and resources to better support all students and specific subsets of the student population. UMSI's international graduates consistently report securing professional jobs in their field of choice, a strong indicator that that this constituent need is being met.

MSI employment outcomes consistently indicate that approximately 98% of all graduates obtain professional positions in their field of choice. This demonstrates that the MSI Program is meeting students' major objective—gainful employment in a professional position in their area of expertise following graduation. Not only are UMSI graduates successful in obtaining employment in their field of choice, they report high levels of satisfaction. For example, in the 2016 Employment Report (reporting on 2015 graduates), 90% of UMSI graduates reported high levels of satisfaction with their job outcome.

(See appendix IV.6 for UMSI 2011-2016 Employment Reports, documenting the School's graduates.)

IV.1c The program has policies to recruit and retain students who reflect the diversity of North America's communities.

UMSI's Commitment to Diversity

UMSI has a firm and long-standing commitment to diversity generally and to recruiting and retaining a diverse student body specifically. This commitment has been formalized in a statement drafted by the School's 2013 Diversity Committee and approved by a vote of the governing faculty and the UMSI Diversity, Equity, and Inclusion (DEI) Plan developed in the 2015-2016 academic year in response to the U-M President's charge to all U-M schools and colleges. (See standard I.1.2 for DEI Plan details.)

Diversity Recruitment Initiatives

UMSI is committed to efforts focused on the recruitment of a diverse student body. OSA has substantial recruitment and yield plans, including local and national events and outreach, mass marketing, tailored communications, print and online advertisements, social media outreach, and yield activities. Alumni, current students, faculty, and staff are involved in recruitment and yield work. The School's diversity recruitment efforts are aimed at various populations, including underrepresented minorities, veterans, and first-generation students among others. While international applications to UMSI have increased over the years, domestic applications have slowly declined, leading to additional challenges in the recruitment of diverse students who are U.S. citizens. In the last five years, of the domestic matriculating students, underrepresented minority students have ranged from a low of 8.12% (31 total in 2012) to a high of 11.64% (44 total in 2011). In 2015, the MSI Program enrolled 35 underrepresented minority students. Later in this chapter, tables IV.5 and IV.6 provide more detail on the race and ethnicity of MSI students.

Best practices for diversity recruitment emphasize the importance of a comprehensive approach that begins with pre-admission recruitment and considers the full student lifecycle as important to ongoing recruitment success. Thus, all of our efforts consider diversity, and we characterize them into these five stages: (1) outreach, (2) prospective students and applicants, (3) matriculates, (4) current students, and (5) connections with campus student diversity groups. Below is detail for each stage.

Outreach Stage

In the outreach stage, OSA staff focuses on building awareness, educating prospective students about our field, building relationships with relevant individuals and groups, and building relationships with both prospective students and "influencers," such as advisors, faculty members, and others who can encourage and refer students to apply to our program.

To help extend OSA staffing for outreach, a current MSI student serves as a diversity-focused information mentor who helps implement outreach efforts by presenting to groups on campus, represents UMSI at relevant conferences alongside staff and/or faculty, and identifies new and creative channels for communication and publicity with diverse audiences.

OSA collaborates on recruitment outreach with the UMSI Multicultural Information Exchange (MIX) student group. MIX is a student group that students renamed and refocused from its earlier reincarnation called Underrepresented Minorities at SI (UMSI). Its mission is to support historically underrepresented students by connecting them with networking, mentoring, and research opportunities and to actively participate in student recruitment. The initiative and commitment of current minority students, among others, has been essential in these efforts.

OSA publicizes our program with numerous national programs focused on increasing diversity in higher education, such as the McNair Scholars Program, Gates Millennium, Project 1000, and the National Consortium for Graduate Degrees for Minorities in Engineering and Sciences (National GEM Consortium). We have been actively involved (providing guest presentations) in the University of Pittsburgh's iSchool *Inclusion Institute* (I*3)*. Pittsburgh's I3 Institute is a summer program that supports diverse undergraduates interested in information science to prepare for successful entry into graduate school.

In 2014 and 2015, MSI student information mentor employees gathered and updated a list of over 2,000 contacts at over 60 highly selective universities. This list, created by searching each university's website, includes student groups, honor societies, and official diversity offices. OSA refers to listed contacts and sends them information about the MSI Program plus specific information about available scholarships, fee waivers, and matching funds for external scholarships. Highlighted is the UMSI Achievement Fellowship, a dedicated scholarship awarded to eight to 10 newly admitted UMSI students each year based on their demonstrated commitment to diversity, which provides a full funding package that includes tuition, stipend, laptop allowance, and a travel grant.

UMSI promotes and supports student participation in numerous national fairs and conferences that focus on underrepresented populations, including Grace Hopper Celebration of Women in Computing, the Society of Hispanic Professional Engineers (SHPE), the National Society of Black Engineers (NSBE), the Society of Women Engineers (WISE), and the California Diversity Forum. The School provides funding to enable student representatives to attend these fairs and conferences where they help OSA staff at an UMSI exhibit booth.

A range of additional outreach efforts includes offering information sessions about our program at the U-M Detroit Center and at Detroit-area colleges; participating in the National Name Exchange program which provides minority students with an opportunity to add their name to a database for access by graduate programs across the country; participating in graduate school preparedness workshops at conferences such as NSBE or the California Diversity Forum; social media marketing efforts at minority-serving institutions; and advertising in specialized publications such as *Diverse Issues in Higher Education*.

Prospective Student and Applicant Stage

When students contact UMSI expressing interest in our program, the prospective student and application stage begins. UMSI offers travel grants to students who demonstrate financial need to attend our fall prospective student day called Connect with UMSI. OSA provides a high touch process in which students can stay connected with an information mentor and an admissions staff member who quickly responds to their questions or concerns. Students who meet financial need criteria (such as Pell grant recipients) are offered an application fee waiver. Substantive advising is available regarding resources and options for funding the degree program.

Matriculates Stage

As students are admitted to the program they are also evaluated for UMSI scholarships. Following best practices for diversity recruitment and following state and federal laws, UMSI offers funding that includes criteria focused on a broad definition of diversity including a commitment to diversity and working with underserved populations as well as a wide range of characteristics and experiences (e.g., disability status, first generation college student or citizen status, veteran status, low SES, overcoming significant obstacles etc.). Offering funding with a diversity focus sends a strong message about our value of diversity and helps students from a wide range of backgrounds with the high cost of attendance. In addition to UMSI funding, such as our SI Achievement Fellows (which includes full tuition, stipend, conference travel, and laptop funds), diversity broadly defined is a factor in all UMSI scholarship criteria.

In addition, we maintain information on external scholarships with a diversity focus and advise applicants and admitted students on these opportunities. We offer matching funds for all external scholarships, and have matched awards including the ALA Spectrum Awards, Hispanic Scholarship Fund, GEM Fellowships, Gates Millennium scholarships, and LITA scholarships, among others.

As students indicate acceptance of admission and scholarship, we continue to provide a high touch approach through individual contact. Communications include emails and/or phone calls from full-time staff members, current students, alumni, and faculty members. We have dedicated staffing to communicate with and respond to students individually as they decide to join the program and then prepare for their transition. We engage all students in an online community from early summer through Orientation and include information, resources, and networking opportunities for students from underrepresented communities. For example we list campus services and include the services available for first generation students; we provide information on student groups including those that are broad-based as well as those that provide affinity for specific groups of students.

Current Students Stage

We continue our efforts that support diversity recruitment as part of our initiatives to build multicultural skills in all students and to foster an inclusive community. This provides the essential environment that will continue to draw and sustain a diverse student body. In particular, we offer sessions for all students during orientation that focus on inclusion, such as the "Change It Up" workshop that builds awareness of microaggressions and offers strategies for bystander intervention in exclusion incidents. We provide additional training on diversity and inclusion to student leaders of student groups to actively encourage their approaches and programs to be inclusive and supportive of diverse students. We offer focus groups and student dialogue sessions to provide opportunities for students to share their experiences and concerns and identify ways our community can improve. Our MSI Student Survey asks for input on the climate and experiences of inclusion or exclusion (see appendix IV.3, pages 6 and 7). Together these activities support students' learning and growth and support ongoing diversity recruitment efforts.

Connection with Campus Student Diversity Groups

UMSI strives to create a welcoming environment for all students. UMSI actively supports the involvement of diversity-oriented student groups, such as MIX and Queer and Trans@ SI in retention efforts. These groups organize activities for their members and offer educational opportunities for the School generally. They provide a place for students to feel connected with others who share an important interest or identity with them and help provide a communication channel for students' needs and interests. These functions help support student retention and more generally, the existence of these groups sends a signal to prospective, admitted, and incoming students and matriculates that they are welcome and valued at UMSI.

In recent years, UMSI has added initiatives to support first generation college students (FirstGens). Such support has been significantly increased at the U-M level, and UMSI has continued that support network by connecting prospective, admitted, and incoming FirstGens with first generation matriculates, staff, and faculty. Other FirstGen activities are a special luncheon for first generation students who attend our admitted student weekend, as well as a letter sent from one of our MSI FirstGens informing the admitted FirstGen about relevant U-M and UMSI resources. Feedback from last year's luncheon was entirely positive, demonstrating the value of the event as well as convincing us to repeat it in the years to come:

- *"This was a really nice opportunity to get to meet other first generation students and connect with them in a more intimate environment."*
- *"Although it was a simplistic event, it was a great introduction to the weekend. It helped to calm my nerves and it made me feel welcome at the University."*

Our FirstGen initiatives create a welcoming and supportive atmosphere from the start and connect admitted FirstGens with current students who have similar backgrounds and/or interests before FirstGens even arrive on campus. Once enrolled in UMSI, retention of underrepresented minority students is very high and job outcomes have been strong. For example, sample job titles and employer types are Digital Archivist [university archives]; Emerging Technologies Librarian [university library]; Librarian, [public library]; Interaction Designer [big 10 corporation]; User Experience Designer [start up]; User Experience Architect [corporation]; Technology Analyst; and IT Analyst [U.S. government]. UMSI has also helped faculty understand the challenges experiences by FirstGen students and ways to manage this in the classroom and advising.

IV.1d The composition of the student body is such that it fosters a learning environment consistent with the program's mission and program goals and objectives.

The 2015 fall enrollment count for the MSI Program numbered 331 students, representing over 70 undergraduate majors, with an average undergraduate GPA of 3.5, an average GRE of 315 (verbal plus quantitative), and an average 4.5 out of 6.0 for analytical writing. Students' ages ranged from 20 to 58. Women made up 60% of the student body, and men 40%. Over 90% of the student body attended full time. These students came to UMSI from across the nation and world, with 95 in-state students and 226 out-of-state (including 123 international students representing 11 countries). Underrepresented minority enrollment

was 35 students, representing 10.6% of the student body. Additionally, 37% of the students in the fall 2015 entering cohort met one of the following criteria:

- First generation college student
- First generation citizen
- Self-identified as overcoming obstacles related to underrepresented identity
- Geographic diversity (rural or inner-city)
- Pell Grant recipient or significant financial hardships in undergraduate study
- Non-traditional student (at least five years out of undergraduate study)
- Veteran or active duty

Table IV.1 shows UMSI enrollment by specialization for six academic years, beginning in 2011 and ending in 2015. Although HCI, LIS, and ARM experienced double-digit percentages for all five years, HCI percentages began at 27.64% in 2011 and increased to 48.04% in 2015 while percentages of ARM students decreased from 13.57% to 11.18% and percentages of LIS students decreased from 21.61% to 14.80% during the same time period. In terms of numbers, LIS students show a consistent decline from a high of 86 students in 2010 and 2011 to 49 in 2015. UMSI expects continued downward trends for both ARM and LIS in 2016. At the same time, the number of tailored students is increasing, as many students who would formerly have identified in the LIS specialization are now creating personalized degrees that combine elements of multiple specializations. For many years, UMSI has supported specializations with small numbers of students, e.g. the Information Economics for Management specialization. The new curriculum is also focused on career pathways, a number of which are traditionally aligned with LIS. UMSI is committed to supporting students interested in LIS and ARM pathways, and given our overall structure and history with smaller specializations, sees this as viable moving forward. In the reformed MSI curriculum, students will have the opportunity to pursue the traditional LIS core (reference, organization, instruction) as well as other courses aimed at emerging areas in libraries, such as data visualization, library assessment, and data curation. The totals in Table IV.1 exceed the enrollment numbers reported in the other tables because some students have more than one specialization. The number of students doing dual specializations has declined over time, from a high of 31 in 2012 to just 10 in 2015. Starting in fall of 2017, the MSI curriculum reform will end our current approach to specializations altogether, providing new advising tools for students to chart their pathway through the program.

Table IV.1 MSI Enrollment by Specialization

	2015	2014	2013	2012	2011	2010
Archives and Records Management	37 (11.18%)	44 (11.96%)	51 (12.23%)	62 (15.01%)	73 (17.89%)	54 (13.57%)
Community Informatics	-	1 (0.27%)	2 (0.48%)	11 (2.66%)	15 (3.68%)	17 (4.27%)
Human-computer Interaction	159 (48.04%)	155 (42.12%)	177 (42.45%)	129 (31.23%)	113 (27.70%)	110 (27.64%)

	2015	2014	2013	2012	2011	2010
Information Analysis & Retrieval	38 (11.48%)	52 (14.13%)	46 (11.03%)	30 (7.26%)	21 (5.15%)	16 (4.02%)
Information Economics for Management	11 (3.32%)	22 (5.98%)	25 (6.00%)	24 (5.81%)	18 (4.41%)	14 (3.52%)
Information Policy	-	-	5 (1.20%)	14 (3.39%)	17 (4.17%)	24 (6.03%)
Library and Information Services	49 (14.80%)	61 (16.58%)	67 (16.07%)	82 (19.86%)	86 (21.08%)	86 (21.61%)
Preservation of Information	6 (1.81%)	13 (3.53%)	20 (4.80%)	39 (9.44%)	21 (5.15%)	20 (5.03%)
School Library Media	1 (0.30%)	3 (0.82%)	3 (0.72%)	3 (0.73%)	8 (1.96%)	10 (2.51)
Social Computing	6 (1.81%)	4 (1.09%)	7 (1.68%)	7 (1.69%)	12 (2.94%)	14 (3.52%)
Tailored	24 (7.25%)	13 (3.53%)	14 (3.36%)	12 (2.91%)	24 (5.88%)	33 (8.29%)
Total*	331	368	417	413	408	398

*Includes students pursuing more than one specialization

Table IV.2 shows six-year MSI enrollment data by part-time (PT)/full-time (FT) status. Overwhelmingly, MSI students attend the program on a full-time basis. Full-time students account for between 90% and 94% of MSI students, and part-time students account for between 10% and 6% of MSI students. Since the highest percentages of part-time students are 9.79% in 2010 at the beginning of reporting period and 9.97% in 2015 at the end of the reporting period, no trends are evident indicating that part-time students are significantly increasing or decreasing over the years.

Table IV.2. MSI Enrollment by Part-Time (PT)/Full-Time (FT) Status

Year	# Total	# FT	% FT	# PT	% PT
2015	321	289	90.03	32	9.97
2014	355	326	91.83	29	8.17
2013	393	369	93.89	24	6.11
2012	382	357	93.46	25	6.54
2011	381	349	91.60	32	8.40
2010	378	341	90.21	37	9.79

Table IV.3 shows six-year MSI enrollment data by gender. The percentages of females range between 59% and 64% of MSI students, and the percentages of males range between 36% and 41% of MSI students. Overall, no trends are evident indicating male or female students are significantly increasing or decreasing over the years.

Table IV.3. MSI Enrollment by Gender

Year	# Total	# Female	% Female	# Male	% Male
2015	321	192	59.81	129	40.19
2014	355	226	63.66	129	36.34
2013	393	250	63.61	143	36.39
2012	382	237	62.04	145	37.96
2011	381	229	60.10	152	39.90
2010	378	234	61.90	144	38.10

Table IV.4 shows MSI enrollment data by residency status. The percentage of students with out-of-state residency has grown substantially over the six-year period, beginning at 57.67% in 2010 and ending at 70.70% and 70.40% in 2014 and 2015, respectively.

Table IV.4. MSI Enrollment by Residency Status, 2010 - 2015

Year	In-State (#)	In-State (%)	Out-of-State (#)	Out-of-State (%)	Total
2015	95	29.60	226	70.40	321
2014	104	29.30	251	70.70	355
2013	103	26.21	290	73.79	393
2012	132	34.55	250	65.45	382
2011	164	43.04	217	56.96	381
2010	160	42.33	218	57.67	378

Table IV.5 shows enrollment data for the ethnic origin of the MSI Program's male students. During the six-year period, white students peaked in 2010, accounting for almost 60% of male MSI students, and dipped in 2013, accounting for a little under 33% of male MSI students. During the same time period, international students peaked in 2013, accounting for 47.55% of male MSI students and dipped in 2011, accounting for a little over 21% of male MSI students. Percentages of Asian and Hispanic males ranged from 3.47% to 7.75% and from 4.58% to 6.25%, respectively. No male students identified themselves as American Indian during the six-year time period, and the numbers of African American males ranged from 1 to 4.

Table IV.5. MSI Enrollment by Ethnic Origin of Males

	2015	2014	2013	2012	2011	2010
American Indian #	0	0	0	0	0	0
American Indian %	-	-	-	-	-	-
Asian #	7	10	11	10	6	5
Asian %	5.34%	7.75%	7.69%	6.90%	4.08%	3.47%
African American #	4	3	2	3	3	1
African American %	3.05%	2.33%	1.40%	2.07%	2.04%	0.69%
Hispanic #	6	6	8	7	7	9
Hispanic %	4.58%	4.65%	5.59%	4.83%	4.76%	6.25%
White #	54	45	47	61	88	82
White %	41.22%	34.88%	32.87%	42.07%	59.86%	56.94%

	2015	2014	2013	2012	2011	2010
Multiracial #	2	2	3	3	3	6
Multiracial %	1.53%	1.55%	2.10%	2.07%	2.04%	4.17%
Unknown #	5	3	4	6	9	6
Unknown %	3.82%	2.33%	2.80%	4.14%	6.12%	4.17%
International #	53	60	68	55	31	35
International %	40.46%	46.51%	47.55%	37.93%	21.09%	24.31%
Total	131	129	143	145	147	144

Table IV.6 shows enrollment data for the ethnic origin of UMSI's female students. During the six-year period, white students spiked in 2010 and 2011, accounting for almost two-thirds of female MSI students, and has declined ever since, reaching its low of 39.47% in 2015. During the same time period, percentages of international female students has risen, starting at 15.81% in 2010 and more than doubling to 36.84% in 2015. Percentages of Asian and Hispanic females ranged from 5.06% to 7.26% and from 2.80% to 6.41%, respectively. Only five female students identified themselves as American Indian during the six-year time period, and the numbers of African American females ranged from 3 to 9.

Table IV.6. MSI Enrollment by Ethnic Origin of Females

	2015	2014	2013	2012	2011	2010
American Indian #	0	0	0	1	1	3
American Indian %	-	-	-	0.42%	0.43%	1.28%
Asian #	12	14	18	12	15	17
Asian %	6.32%	6.19%	7.20%	5.06%	6.41%	7.26%
African American #	5	8	9	3	5	7
African American %	2.63%	3.54%	3.60%	1.27%	2.14%	2.99%
Hispanic #	10	11	7	9	15	11
Hispanic %	5.26%	4.87%	2.80%	3.80%	6.41%	4.70%
White #	75	95	124	140	147	147
White %	39.47%	42.04%	49.60%	59.07%	62.82%	62.82%
Multiracial #	8	9	4	5	6	7
Multiracial %	4.21%	3.98%	1.60%	2.11%	2.56%	2.99%
Unknown #	10	6	3	8	6	5
Unknown %	5.26%	2.65%	1.20%	3.38%	2.56%	2.14%
International #	70	83	85	59	39	37
International %	36.84%	36.73%	34.00%	24.89%	16.67%	15.81%
Total	190	226	250	237	234	234

In the past several years, the School's enrollment has been marked by a significant increase in international students, primarily students from China. We have also seen growth in students from India and Taiwan. We also see students from a range of other countries including Brazil, Germany, Canada, and Japan, among others. We see this trend continuing, with 51% of 190 MSI students entering in 2016 having international status. As a result, OSA has worked to provide additional advising and support to meet the needs of international students and to bridge cultural differences across the student body both in and out of the classroom. Meanwhile, we continue to work hard to increase the number of U.S. underrepresented minorities in the MSI Program.

IV.2

Current, accurate, and easily accessible information about the program is available to students and the general public. This information includes documentation of progress toward achievement of program goals and objectives, descriptions of curricula, information on faculty, admission requirements, availability of financial aid, criteria for evaluating student performance, assistance with placement, and other policies and procedures. The program demonstrates that it has procedures to support these policies.

(Responses to this standard are split into separate discussions IV.2a to IV.2c below.)

IV.2a

Current, accurate, and easily accessible information on the School and program is available to students and the general public.

UMSI places a high priority on providing multiple in-depth sources of information for prospective and current students and the general public. UMSI's website at http://si.umich.edu, and it serves as a primary source of information, featuring the School's mission, program description, course catalog, course descriptions, links to syllabi, information on each MSI specialization, faculty profiles and research activities, admissions and financial aid information, information on career development, and engaged learning opportunities.

The UMSI website displays student and alumni profiles that detail stories of student experiences and success. An event listing and a page highlighting UMSI in the news and recent publications provides easy access to the activities and events happening at the school. A featured video page and a link to the UMSI YouTube channel (https://www.youtube.com/user/schoolofinformation) provides viewers access to in-depth videos on academic content, guest speakers, the student experience, career development, entrepreneurship, and new initiatives at UMSI including the Global Information Engagement and Citizen Interaction Design Programs. UMSI has an active presence on many social media sites including Facebook (https://www.facebook.com/uomsi/), Twitter (https://twitter.com/umsi), and Pinterest (https://www.pinterest.com/umsi/) with a private group Facebook page for prospective MSI students hosted by staff and current students.

The *MSI Student Handbook* (appendix IV.1) is available to UMSI students online and provides current students with information on policies, procedures, resources, services, contacts, grading policy, grievance procedures, helpful campus resources, and much more.

UMSI sends current students regular newsletters and emails with reminders about upcoming events and programs along with relevant deadlines in the academic calendar and announcements about scholarships, conferences, and special activities.

IV.2b

This information includes documentation of progress toward achievement of program goals and objectives, descriptions of curricula, information on faculty, admission requirements, availability of financial aid, criteria for evaluating student performance, assistance with placement, and other policies and procedures.

Program Goals, Objectives, and Curricular Information

UMSI has developed substantive content on its website related to the School's mission, vision, curriculum, degree requirements, specializations and tailored option, courses, service engagement, global programs, and entrepreneurship. The MSI degree components page (https://www.si.umich.edu/academics/msi/msi-degree-components) outlines the various requirements of the degree and lists courses that count toward the management and methods distributions. The MSI specializations page (https://www.si.umich.edu/programs/msi/msi-specializations) briefly describes each specialization and links to specific specialization pages bearing a description, career opportunities, and sample job outcomes, and lists the required and optional courses that fulfill the specialization.

The U-M maintains an online course catalog (https://wolverineaccess.umich.edu/, scroll down to "Public Resources" and click on "U-M Course Catalog") and degree audit tool via its Wolverine Access system. At the latter, students can check their online degree progress at any time and identify degree requirements they have not yet fulfilled. The course backpacking and registration system allows students to identify possible schedules and select courses. In addition, UMSI also maintains an open course catalog (https://www.si.umich.edu/programs/courses) with detailed course descriptions and links to syllabi so that students can plan for the future.

Faculty Information

The UMSI website provides substantial information about the faculty through an online faculty directory (https://www.si.umich.edu/directory). Website users search the directory by first name and/or last name and have the option to filter results, or they can browse faculty alphabetically by last name from A to Z. Online faculty directory entries provide a brief bio, photo, contact information including phone, e-mail, and website, classes-taught list, links to syllabi, areas of interest, and links to related news articles and research projects. In addition, the UMSI website's Research (https://www.si.umich.edu/research) page provides information on research themes and links to a page on each theme, listing the faculty members involved, current projects, and links to relevant research news.

Admissions Requirements Information

The UMSI website's MSI Admissions page (https://www.si.umich.edu/programs/msi/admissions/msi-admissions) opens the door to comprehensive information regarding the School's application and admission process. The basic admissions requirements and deadlines are given, along with links to register as a prospective student, begin an application, and seek an application fee waiver. Students have the option of e-mailing UMSI Admissions directly, viewing UMSI through social media, displaying a calendar of recruitment events, requesting to speak to a student directly or to an admissions advisor by phone or email. More opportunities are listed:

- Encouraging prospective students to set up a campus visit
- Showing highlights of a typical visit including an admissions advising appointment
- Sitting in on a class
- Having lunch with a current student
- Getting a tour of UMSI's North Quad location

Prospective students are especially interested in the MSI Admissions Blog (https://www.si.umich.edu/programs/phd-information/admissions/studentstaff-blogs) which is written by current MSI students. In the 2015-2016 academic year, we featured a "Day in the Life" series where current students volunteered to post photos and updates throughout their day, giving a detailed glimpse into the life of an MSI student.

Financial Aid Information

The UMSI website's Funding Your Degree page (https://www.si.umich.edu/academics/funding-your-degree) gives an overview of the kinds of funding available to MSI students and provides links to the admission staff's contact information so that prospective students can contact them directly. It includes a list of relevant sources of funding from UMSI, U-M, and external organizations along with descriptions and links to additional information. Of note, UMSI features a matching-funds program for students who have received awards from external organizations. Through this program, returning students who are Gates Millennium Scholars, Peace Corps volunteers, and Americorps alumni, for example, can potentially double an award for their service. Additionally, UMSI has increased its undergraduate course offerings, providing more opportunities for MSI students to work as graduate student instructors (GSIs) or graders. The funding list grows each year as UMSI actively seeks new sources of funding to share with students. Since most MSI students work part-time during their academic program, information and links regarding employment options and resources are cited on the UMSI website's Student Employment page (https://www.si.umich.edu/academics/funding/student-employment).

Criteria for Evaluating Student Performance

Information on UMSI's grading scale is published in the *MSI Student Handbook* (appendix IV.1) which is given to students before Orientation and is freely available online. Honor points and an interpretive statement of what the grade represents accompany each grade. For example, a grade of A equals 4 honor points per credit hour and represents "consistently distinguished performance in all course aspects, such qualities as analytical ability, creativity, and originality are exhibited at a very high level."

The Handbook underlines the requirement of maintaining a B or 3.0/4.0 GPA in order to graduate along with other grading policies pertaining to Incomplete (I), Satisfactory (S), and Unsatisfactory (U) grades. Additional details on grading in each course are provided on the syllabi that course instructors distribute to students and are freely available online in the course catalog (https://www.si.umich.edu/programs/courses) and faculty directory (https://www.si.umich.edu/directory).

Assistance with Gaining Employment

UMSI's Career Development Office (CDO) provides comprehensive and tailored career services, information, and resources as well as making them accessible to students through multiple platforms, models, and programs to support and guide students in career exploration, self-assessment, professional development, networking, and job search readiness. The UMSI website's iCareers page (https://www.si.umich.edu/careers/students-and-alumni) is a comprehensive job search toolkit for MSI students seeking internships, for graduating MSI students seeking professional positions, and for UMSI alumni seeking professional positions. Here are career resources across information-specific career fields for all students as well as for opportunities that focus on specific topics, e.g., international and LGBTQ issues. Links to UMSI-produced career resources get students started on resume and cover-letter writing; interviewing; preparing for job fairs; handling salary negotiations;

and choosing whether/how to disclose personal issues, such as dual career needs, gender expression, and/or sexual orientation to prospective employers. Links to externally produced resources include a discussion of LinkedIn's benefits for job seekers.

Consulting the annual UMSI Employment Report (appendix IV.6), graduating students learn about the wide range of job positions available to previous graduating classes, take stock of their qualifications for them, and compare these positions' salaries with the salaries they find published in newly posted job positions. Links to all-purpose, subscription-based job search websites such as Vault, Glassdoor, and VersatilePhD are a click away, as are links to job search websites classified by MSI specialization. For example, the Library and Information Science Career Development page (https://www.si.umich.edu/sites/default/files/Library%20and%20information%20science.pdf) lists over 100 links in these categories:

- Job and intern sites and job listserv
- Professional organizations & associations and related job sites
- Related resources and comprehensive organization listings
- Recruiters and headhunters

At UMSI's internship gallery (https://seelio.com/g/pep), students seeking internships can get a sense of what prospective internship sponsors expect from them by displaying their peers' internship portfolios, then follow up in iTrack (https://www.si.umich.edu/careers/itrack), UMSI's vendor-provided, online job posting and job recruitment system. iTrack allows students to create their own profile and maintain a log of their internship or job search activity, including their materials, e.g. resumes and cover letters. The system includes job and internship postings, employer contact information, a library of the School's career and job search workshops and presentation slides, a workshop and career events calendar, and an on-campus recruiting calendar along with interview and information session schedules.

CDO staff engage employers in a variety of ways. CDO staff organize employer information sessions, bring employers to campus for on-campus interviews, and provide space for potential employers to have office hours or meet and greet sessions with UMSI students. CDO also engages potential employers as mentors in co-curricular activities, such as design jams. Finally, CDO reviews students' resumes and portfolios and conducts mock interviews with students.

While many hundreds of employer contacts and opportunities are available to students through the iTrack recruitment system, we also invite employers to campus for interviews and career events such as the UMSI Career Fair, which draws a wide range of employers both local and national, including organizations such as JSTOR, IBM Design, Llamasoft, Duo Security, Eastern Michigan Libraries, Michigan State University Libraries, and Athena Health. During the Visiting Days event for admitted MSI students, we offer a networking fair (also open to current students) with campus and local employers and even some national employers, all eager to meet students to discuss opportunities from part-time local jobs to future internships and full-time positions. In partnership with the UMSI Alumni Relations Office, we arrange various alumni career events including speed networking sessions, Hangouts with the Pros (Google hangout/remote sessions with alumni from across the country) alumni panel sessions, and meet-and-greets.

Our experiential and engaged learning programs are housed within the Career Development Office, providing comprehensive support to students as they chart their career path and build experiences to prepare for it. Experiential and engaged learning programs include our Practical Engagement Program (credit-based internships) (see also II.1c and II.3b), Alternative Spring Break Program (see also II.1c, II.3b, and II.2.4), and global and community engagement programs (e.g. Global Information Engagement Program, Citizen Interaction Design Program, Service Day, and Community Impact Projects) (see also II.1c and II.2.4). These experiences provide what higher education research refers to as "deep learning" or "transformational learning" opportunities, as students have the opportunity to test ideas and knowledge through hands-on, real-world experience which advances their learning from passive to active and from abstract to internalized.

Professional Career Counseling and Advising

The cornerstone of our comprehensive career services is our commitment to professional, individual career counseling and advising services for all students. Even students with clear goals benefit greatly from career counseling (or coaching as it is increasingly termed) to better understand their strengths and values, to identify experiences to build needed skills, and to successfully engage in a professional internship or job search. UMSI has continued to invest in professionally trained career counseling staff members who are able to conduct and interpret self-assessment tools with students (such as the Myers-Briggs Type Indicator, StrengthsFinder, and varied interest, values, and skills inventories), and who are trained in counseling and advising techniques that help students identify barriers and build strategies to overcome them, explore career and job opportunities, and then apply decision-making approaches to fine-tune their areas of focus, improve their professional communications and follow-up, and prepare top-notch job search materials. This same level of professionalism extends to the numerous career development workshops and programs that CDO offers. CDO sponsors more than 100 workshops each year on a variety of topics, issues, and themes that prepare MSI students for transition from student to professional. Attendance at CDO workshops typically ranges from 10 to 15 students; except for engaged-learning workshops, attendance is optional. Here is a selective list of CDO's job search skills and readiness workshops:

- Resume Development
- CV Development
- Cover Letter Development
- Interview Skills and Practice (including mock interviews)
- Salary Negotiation
- Networking
- Developing Your Pitch for Employers
- Career Fair Prep
- Using Social Media in Your Job Search
- Part-Time Job Search

CDO also offers career development programs that target specific student communities; a selection of these programs are shown below:

- International Internships
- Service-Based Internships
- Internship Orientation/How to Succeed in Your Internship
- Internship Panels by Industry (e.g., libraries, archives, nonprofits)
- Being Out in the Job Search
- Disability Disclosure in the Job Search
- U.S. Job Search for International Students
- Developing a U.S.-Based Resume
- Career by Industry
- Alumni Career Panel Sessions by Industry
- Women in Information Series

CDO workshops address critical professional skill development areas that are important for student success both in the classroom and on the job:

- Social Identity and Cultural Awareness
- Conflict Resolution
- Client Engagement
- Business Communications
- Facilitation Training
- Entering and Exiting Communities

Students' career awareness and knowledge is enhanced through programs such as the Day in the Life Series which brings in employers and/or alumni to share the specifics of their work in particular fields, and professional development sessions that give students an edge in critical job skills such as project management, business communications, team dynamics, and leadership.

Recruitment Communications and Activities

Between 2007 and 2015, MSI applications increased from 364 to 563, a 55% increase. This growth in applications enabled us to reach, and at times exceed, our targeted MSI Program size of 350 students. Going hand-in-hand with the growth in MSI enrollment has been the growth of faculty, enabling UMSI to offer new courses and foster new research initiatives. These, in turn, have benefited the instructional program by putting students on the cutting edge of new discoveries and including them on research teams and discussion groups. UMSI recruitment strategies seek to connect with prospective students who enrich our interdisciplinary environment through the diversity of their academic

disciplines, the wide array of their professional interests, their varied work experiences, their full range of ethnic and racial backgrounds, and a multitude of career goals. Our recruitment initiatives reach a broad base of highly qualified individuals and value the recruitment of historically underrepresented minorities.

Range of Recruitment Strategies

The connection between recruitment and admissions is inseparable, and UMSI continues to pioneer innovative and broad strategies to support its goals of enrollment growth and increased selectivity. True to UMSI's leadership and commitment to innovation, we continually invest time and resources to research and implement the latest tools to communicate with prospective and admitted students. These tools are listed below.

Social Networking Tools:

- UMSI Facebook page
- UMSI Twitter page
- UMSI YouTube channel, especially its videos targeting prospective students
- UMSI LinkedIn groups
- Facebook page targeting prospective MSI students
- Skype

MSI Admissions Blog:

- Enabling current MSI students and admissions staff to alert prospective students on funding and applications details, what to expect in the program, and what to expect of academic life and living in Ann Arbor

Mass-Marketing Efforts:

- Three-part GRE campaign (including diversity component) to over 60,000 prospects
- Facebook component
- Influencer postcard mailed to 25,000 campus administrators, libraries, and faculty
- Influencer e-mail campaign sent to nearly 4,000 campus administrators, student group leaders, and faculty at selective regional schools

Tailored Mailings and E-mail Messages:

- Sending thank-you letters to prospective students' reference writers bearing enclosures about UMSI
- Communicating with inquirers and alumni in regions where UMSI will be represented at various fairs
- Sending messages to diversity honors societies at select campuses with information about UMSI scholarships

- Promoting UMSI student-led conferences, workshops, and events
- Sending specific follow-up messages to those interested in UMSI's Peace Corps programs
- Sending email messages to those interested in service at UMSI
- Sending email messages to those interested in UMSI's Entrepreneurship Program
- Sending email messages to first-generation students
- Sending email messages to prospective students who are top GRE test-takers or have strong GPAs regarding UMSI's GRE Fee-Waiver campaign
- Sending publicity about Connect with UMSI to prospective students
- Sending email messages about UMSI to selected groups of U-M graduating students (such as those who are first-generation college students, Pell grant recipients, veterans, etc.)
- Making multiple communications to faculty, administrators, and student organizations at Michigan colleges and universities
- Distributing business cards to current UMSI students to pass out when networking, promoting UMSI at conferences, interviewing for internships and jobs, participating in Alternative Spring Break, etc.

Advertisements:

- Library Journal Buyer's Guide
- Petersons.com, a popular website for learning about colleges and universities
- *Michigan Daily* Newspaper online, the U-M's student-run daily newspaper
- Diversity in Careers
- Newspaper ads
- Facebook ads
- Signs in U-M buses
- Signs and banners placed on the Diag, a busy pedestrian thoroughfare bisecting U-M's central campus

Internet outreach:

- Online information sessions offered to prospective students throughout the academic school year

Distributing Publicity (such as hosting a UMSI exhibit booth or representing UMSI at conferences):

- Connect with UMSI, an annual event held on a fall weekend where prospective students learn about UMSI's programs from faculty, staff, and current students
- National Society for Black Engineers (NSBE)

- ALA Annual Conference Panel on Doctoral Education
- Morehouse College recruiting event
- Grace Hopper Conference
- U-M Graduate and Professional School Fair
- California Forum for Diversity in Graduate Education
- GEM
- National Hispanic Professional Engineers (NHPE)
- Presentations to research scholars
- Presentation to i3 scholars
- AmeriCorps virtual graduate fair
- World IA Day Ann Arbor
- National Conference on Undergraduate Research (NCUR)
- Inviting admitted students to attend alternative spring break alumni receptions with current students and staff
- Speaking to undergraduate students in SI 110 and the Informatics classes

MSI Visiting Days

UMSI offers MSI Visiting Days, a three-day event held over a long spring weekend to which students admitted for the fall are invited. Visiting Days feature staff presentations about the academic program; current students hosting social activities; a lunch with faculty presiding over the discussion; faculty-led mini-lectures on information-related content; career services information sessions; a financial aid briefing; an alumni panel; a networking fair; and expoSItion, a poster session where current students present their research to admitted students, employers, faculty, fellow students, and visitors. Admitted students who are UMSI merit scholarship recipients are provided with travel funding and invited to attend a dean's tea. All participants are given support for transportation to and from Detroit Metro airport, lodging, and meals.

Visiting Dayin 2015 drew 91 participants. Of these 91 participants, 63 accepted UMSI's offer of admission, a 70% yield. Of UMSI merit scholarship recipients who visited UMSI, 26 accepted our offer of admission, a 77% yield.

Of the 91 participants, 67 (73.6%) completed an online Visiting Days evaluation. Eighty-two percent of the respondents indicated that their interest in attending UMSI increased or increased significantly as a result of attending Visiting Days. Respondents indicated that the most attractive aspects of the MSI Program are:

- Areas of specialization (78%)
- U-M's academic reputation (74%)
- Practical experience/internship opportunities (67%)

- UMSI's academic reputation (66%)
- UMSI's career services and career opportunities after graduation (62%)

Student comments helped to affirm the positive aspects of the event and to identify areas for continued improvement. Examples are:

- *"No other Library and Information Science School that I was accepted to does this kind of event—everything was beautifully done."*
- *"It increased interest because I was able to get a better sense of the program, faculty, and wonderful community as well as opportunities to gain practical experience."*
- *"Meeting previous and current students really increased my confidence in the program. The event was really helpful for me—I left feeling like all of my questions had been answered."*
- *"I love hearing from all the students, and about all the service projects that UMSI has."*
- *"I felt very welcomed. Everyone involved seemed to genuinely care about students' success at UMSI."*

Connect with UMSI

UMSI's annual open house is called Connect with UMSI. It provides prospective students with robust information about the MSI Program. Since fall 2014, the open house has been redesigned, extended to two days in the fall, a Saturday afternoon event that includes a reception with faculty and student groups, and a shorter, Thursday evening event for those unable to attend on Saturday.

Participants learn about UMSI's curriculum from staff and hear presentations on career services and funding opportunities. Comments provided by attendees affirm the usefulness of this event:

- *"Getting my MSI at UMSI is definitely a real possibility. Staying within the University of Michigan system is ideal because I know I will be continuing with a quality education that will set me up for the most success in my future endeavors. I really like that I can tailor my experience and coursework within my degree to suit my interests. I also really liked that a lot of real-world application of what students learn is stressed from day 1. It is really reassuring to know that I will have plenty of great experience going into the workforce postgrad."*
- *"I am very glad that I attended since I had the opportunity to meet with current students and faculty to gauge how well UMSI fits with my educational needs. I also received lots of information about admissions and funding that helped solidify my feelings that UMSI was a good fit for me."*

MSI Recruitment Outcomes

With respect to recruitment outcomes, the MSI Program's quality indicators have improved or remained steady while enrollment size and selectivity have increased. "Selectivity" is the proportion of applications accepted out of the applicant pool. Increases in selectivity mean that fewer applicants are admitted. Specifically, selectivity increased

from 85% in 2007 to 69% in 2015. Although UMSI's admissions process and assessment of merit are holistic, both quantitative and qualitative indicators confirm that incoming students' levels of achievement continue to be high.

A continuing challenge with recruiting students and achieving higher yields is the high cost of a Michigan education. The most frequent reason cited by students declining UMSI's admission offer pertains to program cost and lack of funding, despite consistent increases in scholarship funding from UMSI and active efforts to connect students with funding opportunities. For students who do not receive scholarship aid, the potential cost of Michigan's MSI degree may be prohibitive; however, many are successful at securing loans and part-time employment to fund their Michigan education.

UMSI's commitment to refining and perfecting its recruitment activities is focused on maintaining the MSI Program's size and selectivity. After every major recruiting event, especially following Connect with UMSI and MSI Visiting Days, we survey participants and analyze their feedback. We use the results to improve these events. We also ask admitted and incoming students how they found out about UMSI to gauge the impact of our publicity and outreach activities and to guide future efforts.

IV.2c The program demonstrates that it has procedures to support these policies.

At UMSI, faculty committees establish recruitment and retention policies and guide admissions and scholarship procedures. The MSI Program Committee plays a significant role in driving the direction of the curriculum and in determining related policies and procedures, with major decisions involving a full faculty vote (see standard II.1b). Since 2012 the MSI Program Committee and its predecessor, the Curriculum Committee, have been engaged in the reform of the MSI curriculum. This includes fall orientation, which was expanded in fall 2016 with new students splitting into diverse teams and working on an information challenge. Also responsible for policy, procedures, and implementation is the UMSI Recruitment Team that consists of several professional staff members with input from faculty and the assistant dean for academic and student affairs (ADASA) and the ADAA.

UMSI has made a considerable investment in OSA, to make it a more professional student affairs enterprise, evaluating it with student, staff, faculty, and employer input over the years, and implementing changes in response to their feedback. This enterprise has excelled at reaching high enrollment goals, increasing selectivity, and implementing procedures that effectively support the goals of the MSI Program.

IV.3

Standards for admission are applied consistently. Students admitted to the program have earned a bachelor's degree from an accredited institution; the policies and procedures for waiving any admission standard or academic prerequisite are stated clearly and applied consistently. Assessment of an application is based on a combined evaluation of academic, intellectual, and other qualifications as they relate to the constituencies served by the program, the program's goals and objectives, and the career objectives of the individual. Within the framework of institutional policy and programs, the admission policy for the program ensures that applicants possess sufficient interest, aptitude, and qualifications to enable successful completion of the program and subsequent contribution to the field.

(Responses to this standard are split into separate discussions IV.3a to IV.3d below.)

IV.3a

Standards for admission are applied consistently.

UMSI has a thorough and consistent approach to admissions decisions. Admissions are managed and implemented by the MSI Program Committee and a team of experienced student affairs staff; in fact, the admissions current director, assistant director, and coordinator have a combined 28 years of admissions experience. Oversight comes from the ADAA. The substantial experience of the student affairs staff involved in admissions has allowed the faculty on the MSI Program Committee to engage deeply in the setting of admissions criteria and standards and for staff to implement these goals in consultation with the Committee.

Beset with an increasing number of applications and a strong desire to leverage a clearly defined and holistic application review, the MSI Program Committee executed a thorough evaluation and calibration of the admissions process in 2014. The Committee recommended continuing the current application review process, adding more staff, and hiring MSI alumni as staff admission reviewers. To date, the MSI alumni who have been hired as reviewers had been staff employees in OSA during their time as an MSI student. They attend multiple training sessions on admission review and confidentiality given by MSI alumni admission staff and participate in test reviews administered by professional admissions staff and faculty before proceeding on their own. All applications receive multiple reviews with only one of the reviews coming from an alumni reviewer. Calibration and evaluation of all application reviews happens in OSA with oversight and consultation from the MSI Program Committee. This collaborative approach helps ensure that our application review criteria and process successfully identify students whose interests and aptitude align with the MSI Program's goals and objectives.

Despite the increase in applications, the new admission review process has allowed UMSI to respond sooner to applicants regarding their admission status while following the admission standards and goals set by the MSI Program Committee. The new admissions procedures launched in January 2015. Participating alumni have an opportunity to be responsible for the next generation of applicants and future UMSI graduates. All alumni reviewers from the 2015-2016 academic year are returning for the 2016-2017 academic year.

IV.3b

Students admitted to the program have earned a bachelor's degree from an accredited institution; the policies and procedures for waiving any admission standard or academic prerequisite are stated clearly and applied consistently.

OSA staff check student applicants' undergraduate transcripts as part of the admission process to verify that they hold a bachelor's degree from an accredited institution. Students who are in the process of completing their undergraduate degree are awarded conditional admission and must provide a final transcript in the first term or year of the MSI Program. The UMSI website's MSI applications requirements page (https://www.si.umich.edu/academics/admissions/msi-application-requirements) and the MSI recruiting booklet "Connecting by Design" clearly state the MSI Program's admissions criteria and qualifications (See appendix IV.7 for a copy of the MSI "Connecting by Design" booklet.)

UMSI does not have quantitative minimums in the GRE, but does have a preferred minimum undergraduate GPA. Under UMSI's holistic application review process, all applications are given full consideration and undergraduate work and test scores are put into context with the rest of the application material. UMSI does not have specific course requirements, undergraduate major, or a specific technical requirement for admission. All of our materials for prospective students clearly state procedures for admissions requirements waivers and provide details for application fee waivers. For example, we waive the GRE for applicants with an earned PhD and waive the TOEFL for international applicants with degrees from U.S. institutions. Admissions qualifications are:

- Four-year bachelor's degree from an accredited institution
- Cumulative GPA of 3.0 is strongly preferred
- TOEFL score of at least 100 (international students only)

A completed UMSI application for the MSI Program involves these materials:

- Application form and fee
- Statement of purpose addressing the application's five questions
- Personal statement
- Official transcripts from post-secondary institutions attended
- Official notification of GRE score (general test)
- Resume
- Three academic and/or professional references
- TOEFL (international students only)

Academic program waivers are granted for academic degree requirements in technology, management, and methods. Faculty members confirm criteria and procedures for students to receive course requirement waivers. Details on what constitutes a waiver and how to apply for a waiver are posted at the UMSI website's MSI degree components page (https://www.si.umich.edu/academics/msi/msi-degree-components).

IV.3c Assessment of an application is based on a combined evaluation of academic, intellectual, and other qualifications as they relate to the constituencies served by the program, the program's goals and objectives, and the career objectives of the individual.

UMSI's admissions process is in keeping with the University of Michigan's standing as one of the top public institutions in the U.S., and the School's commitment to a holistic review that complements the U-M's diversity, inclusion, and equity goals, admitting students from various ethnic and racial backgrounds and diverse academic disciplines with wide-ranging interests, work experiences, and career goals. UMSI's admissions process is designed to support the School's mission and objectives through recruiting and retaining a student body that supports our key program characteristics: engaged learning; diversity, equity, and inclusion; and educating information professionals for a dynamic, global market by giving them breadth and depth as well as ways of thinking about practice in order to design interactions between people, information, and technology. (See standard I.1.2 for more information.)

The UMSI website's MSI application requirements page (https://www.si.umich.edu/academics/admissions/msi-application-requirements) states the School's admissions criteria and qualifications:

> *"The School of Information draws intellectually rich, academically diverse students from dozens of different disciplines. Our students come from humanities, social sciences, fine arts, law, medicine, business, education, engineering, and health sciences. Students and faculty are united by a holistic view of information systems and a common interest in user-oriented systems and services.*
>
> *We seek students who exhibit leadership potential, who have a team-oriented approach to problem-solving, who are capable of dealing with ambiguity and change, and who have a strong commitment to service."*

Two categories, academic qualifications and fit, figure prominently into UMSI's holistic admissions process. Each category is assessed by a combination of quantitative and qualitative measures found in different parts of the application. Academic measures are:

- Undergraduate GPA
- Quality of undergraduate institution
- Advanced degrees
- GRE verbal measure
- GRE quantitative measure
- GRE analytical writing measure
- English language ability

Indicators of fit are:

- An understanding of UMSI's mission and its socio-technical orientation
- Demonstrated leadership
- Deep engagement in activities (extracurricular or depth in passion)
- Demonstrated service orientation or contribution
- Relevant experiences and/or professional goals
- Entrepreneurial orientation (for example, is the applicant open to change, a self-starter, proactive, and passionate?)

While assessing an applicant's academic qualifications and fit, the admissions process considers contextual factors that contribute to an applicant's experiences. Such factors include but are not limited to:

- Being a first-generation college student
- Being a first-generation U.S. citizen
- Having self-identified experiences of overcoming obstacles related to underrepresented identity
- Coming from geographic diversity (i.e., rural or inner-city environments)
- Being a Pell Grant recipient or having experienced significant financial hardship as an undergraduate student
- Being a non-traditional student, that is, experiencing a gap of five years or longer in academic work
- Being a veteran or having enlisted status
- Having other distinguishing factors that are not accounted for in the criteria above.

Table IV.7 summarizes UMSI's admissions criteria, providing selection criteria, sources of evidence, and examples of the evidence that staff are looking for during their applications admissions review.

Table IV.7 Admission Criteria

Selection Criteria	Sources of Evidence	Threshold Examples
Demonstrated potential for graduate study and to contribute to the profession	Transcript, GPA, GRE, essays, references	Strong academic performance, references with top 15% endorsement on this measure.
Understands UMSI's mission and its socio-technical underpinnings	Essays, references	Essays show an interest in multidisciplinary study with a balance of social and technical interests.
Has relevant experiences and/or professional goals	Essays, references, resume	Related professional experience, particularly at an appropriate level for career stage; experience in work, community, and research that complements UMSI mission and goals

Selection Criteria	Sources of Evidence	Threshold Examples
Demonstrated leadership	Essays, references, resume	Officer position in a student organization, management experience, fast riser professionally.
Deep engagement in activities (extracurricular or depth in passion)	Essays, references, resume, application	Involved deeply or in volume of activities at a contributing level in school, professional, and/or personal life.
Demonstrated service orientation or contribution	Resume, application, essays, references	Experience in service organizations such as Peace Corps, AmeriCorps, Teach for America, or a demonstrated professional interest in service, non-profit and/or non-government organizations (NGOs).
Entrepreneurial orientation	Essays, references, resume	Self-starter, initiator, early adopter (for example, new clubs, new associations, business start-ups, apps, programs/events).

When evaluating an application, reviewers consider the applicant's responses to all admission criteria. While they do not expect that an application will address all "fit factors" for admission, the full set of criteria act as a measuring stick to evaluate how aligned an applicant is with the goals of the MSI Program. "Academic qualification factors" provide guidelines as to the likelihood of an applicant's academic success in the MSI Program. Our holistic approach enables us to look deeply at the application as a whole and to take all factors into consideration. Here is an example of our holistic approach in action. If an applicant's GPA falls below 3.0, yet other application materials, such as the essay, resume, references, and GRE scores provide significant evidence of potential to succeed in graduate studies and contribute to the field, the applicant may be offered admission. Even when the application reports a GPA that is above a 3.0 or high GRE scores, admission is not automatic; the remaining application materials must provide additional evidence in support of the School's admission criteria such as leadership potential, an entrepreneurial orientation, and/or potential to contribute to the information profession.

In particular, the application's statement of purpose essay must demonstrate solid writing skills while addressing the following five questions:

1. What are the critical issues in the field of information?
2. What are your aspirations in the field of information?
3. What is your understanding of the School of Information?
4. How will an UMSI education help you reach your aspirations?
5. What would you contribute to the UMSI community and to the field as a whole?

In summary, UMSI provides a consistent approach to admissions processing and decision making. It also follows guidelines and standards set by the U-M generally. Applicants who are not approved for admission have the option of re-applying and/or requesting feedback on their application and the admission decision.

IV.3d Within the framework of institutional policy and programs, the admission policy for the program ensures that applicants possess sufficient interest, aptitude, and qualifications to enable successful completion of the program and subsequent contribution to the field.

While UMSI seeks to admit a highly diverse student body, we maintain consistent standards across all of our admissions decisions. In particular, we take great care to admit only students who have a strong interest in the field of information and in UMSI specifically. This is evaluated especially through the essay, which asks students to discuss their interests including what they would bring to the program and how they feel UMSI's program will benefit them. As discussed previously (see standards IV.3a, IV.3b, and IV.3c), we look holistically at each application for evidence of academic qualifications that suggest the student will succeed in the MSI Program and as a professional in the field. Our policy of multiple reviews and holistic reviews for admissions in spite of the steady increase in the number of applications we receive has helped to ensure that we admit students who are a good fit with UMSI and well prepared for graduate study.

The quality of the admitted student body is strong, demonstrating high academic and professional achievement and high persistence to graduate. In fact, Table IV.8 reports graduation rates above 93%. Even though we do not have cutoffs for GPAs or GRE scores, we make sure applicants possess sufficient aptitude, scrutinizing their applications, and looking for clear evidence—such as relevant work experience, strong recommendation letters, juggling a wide array of responsibilities and activities—that applicants have the aptitude to succeed in the MSI Program.

Table IV.8. Graduation Rates by Entry Term

Cohort Entry Term/Year	# Enrolled	# Graduated	% Graduated by Fall 2016
Fall 2014	154	145	94.16
Fall 2013	189	177	93.65
Fall 2012	189	182	96.30
Fall 2011	166	163	98.19
Fall 2010	155	150	96.77
Total	853	817	95.78

In addition to admissions review, most students request that we review them for financial aid and scholarship support. UMSI provides a substantial amount of financial support each year. On average, one-quarter of the MSI student body receives direct financial support from UMSI (the actual percent varies slightly year to year). The MSI Program Committee makes scholarship awards on a merit basis during the holistic review process. Scholarships are offered as a percentage of tuition, or they are part of a fellowship program that provides a fuller package to the student. An example of the latter is the UMSI Achievement Fellowship, providing full tuition, stipend, a laptop stipend, access to the UMSI Leadership Series (a series of workshops offered to student organization leaders, top scholarship and fellowship recipients), early access to career advising, and mentorship pairing with an UMSI alumnus. Such a package provides more than tuition support to students and supports their ability to fully invest themselves into their UMSI experience and grow as a leading professional.

IV.4 Students construct a coherent plan of study that allows individual needs, goals, and aspirations to be met within the context of requirements established by the program. Students receive systematic, multifaceted evaluation of their achievements. Students have access to continuing opportunities for guidance, counseling, and placement assistance.

(Responses to this standard are split into separate discussions IV.4a to IV.4c below.)

IV.4a Students construct a coherent plan of study that allows individual needs, goals, and aspirations to be met within the context of requirements established by the program.

Program Features Support Coherent Programs of Study

The breadth and depth of the MSI Program along with key points of flexibility within the curriculum enable students to construct coherent programs of study that meet their individual needs and goals. The MSI is structured as a single degree program from which students choose one, and sometimes two, specializations. There's also the Tailored option that allows students substantial control over the focus of their program of study, assisted by a faculty advisor in the course of building their own curriculum to fit their career goals and aspirations.

Since 2012, UMSI faculty have engaged in a curriculum reform process that will align courses and course sequences with clear skill and mastery outcomes. To prepare for the launch of the future curriculum in fall 2017, MSI academic advisors have received additional training in helping students develop individual academic plans which will frame curricular offerings beyond the specializations and into skill areas focusing on career outcomes. They are also planning ahead, preparing peer advisors and developing new advising tools. With regard to the latter, the online MSI Pathways to Success peer advising and advising tool (https://www.si.umich.edu/academics/pathways-success) that has long served the current curriculum is being evaluated to determine its strengths and weaknesses as staff replace it with a cutting edge advising tools for MSI students faced with decisions pertaining to the future curriculum.

A great deal of flexibility has been built into the Practical Engagement Program (PEP) so that students can develop a plan that best meets their individual needs while fulfilling the practical engagement requirement. PEP credits account for between six and twelve of a student's 48 MSI degree credits and can be completed through coursework that includes a strong experiential component, through part-time, term-based, for-credit internships, or through full-time, for-credit summer internships.

Students selected for UMSI's Professional Practice Fellowship Program meet the PEP requirement through professional practice with industry or employer partners on a part-time basis over the course of four semesters. Additionally, students selected for the University Library Associate (ULA) and Public Library Associate (PLA) Programs where they experience professional practice working at the U-M Library and Ann Arbor District Library, respectively, for 20 hours per week over a two-year time period, also meet the PEP requirement. Other experiential learning opportunities at UMSI that provide students with options for meeting the PEP requirement are global and civic engagement, entrepreneurial engagement, and various faculty-led research projects.

Students can complete the MSI degree on a part-time or full-time basis, shifting between these two statuses at their discretion; however, most students opt for the latter (see Table IV.2).

The U-M encourages schools and colleges to offer dual-degree programs. UMSI currently has six formalized dual degree programs and supports student self-initiated dual degrees with any U-M graduate program (see standard II.3b). While only a handful of students pursue such highly specialized academic plans, they provide both efficiency and cost savings, shaving one year off the amount of time required to complete both programs individually. Note that students can either apply for admission to both programs at once, or they can start their studies at UMSI and apply for admission to the second program during their first year. To receive additional in-depth training, students can complete a supplemental graduate certificate program in a variety of areas, such as Health Informatics; Museum Studies; Data Science; Complex Systems; Spatial Analysis; Science, Technology, and Society; and many area studies programs.

Most MSI students study full-time and complete the degree in two years; however, some students study part-time and complete the degree in three or four years (see Table IV.2). UMSI encourages students to take new courses while pursuing their degree. Students do not have to complete new courses or requirements that are put in place after their term of entry. It is rare for a student to be unable to graduate on his or her desired and planned schedule.

Based on our most recent employment outcomes survey, 95% of respondents indicated the courses they took at UMSI in combination with PEP internships and other practical engagement opportunities were relevant and contributed to their professional job. Additionally, 70% asserted that their UMSI experience prepared them to be a change agent and leader in their field, and 90% reported high levels of satisfaction with their job outcome (See appendix IV.8 for the UMSI Employment Outcomes Survey.)

Pre-Matriculation Advising to Support Coherent Programs of Study

OSA staff members advise incoming students before their first term begins. Much of the advising is accomplished through an online forum in the U-M's CTools course management system. OSA staff provide a robust pre-orientation and advising program throughout the summer via this system. The online forum also gives students an opportunity to interact with each other. Students first introduce themselves, then connect with one another via this forum, choosing categories of information that interest them, such as housing information and matchups, getting involved in UMSI, U-M, Ann Arbor, advising and course offerings, degree requirements, and specializations. OSA staff also regularly post answers to common questions and concerns, such as choosing courses for the first semester, finding a roommate, exploring area neighborhoods, getting advice from current students about navigating graduate school, and more. Students also post questions to the forum, with responses provided by staff members and current student volunteers. The online forum features a chat functionality that staff members have used to advise students about finances, funding the degree, degree requirements and options, course selections within specializations, and other topics of interest. Chat transcripts are saved at the forum so other students can read them at their convenience.

OSA surveys new MSI students each year. (See appendix IV.2 for the MSI Orientation Evaluation questions.) Of 162 orientation participants in fall 2015, 94 completed the survey for a 58% response rate. Of these respondents, 91% reported that they had used

the online advising forum at least once before arriving in Ann Arbor; 94% agreed or strongly agreed that the forum's topics were helpful and appropriate; and 86% agreed or strongly agreed that the posted advisement for course selection and registration was helpful and easy to understand. Moreover, 98% of respondents rated the information and communication they received from admission to orientation (including emails, online chats, phone conversations, and in-person meetings) as very good or excellent.

Another survey question asked students how we could improve our information flow to incoming students. Examples of their responses are:

- *"I think early (fall) notifications, reminding students to apply for external scholarships, would be helpful. Most external scholarship deadlines were very early, and that surprised me."*
- *"Include more information for part-time students, such as suggested courses for the first semester/year."*

Such survey results are evidence of students' positive evaluations of OSA's academic advising efforts that support their transition to graduate school.

The MSI Orientation program is robust, with two days of optional sessions and social events followed by two mandatory days of sessions and activities. Student groups host outings in the evening, and students meet in small groups with faculty at area coffee houses. Faculty members host meetings with new students to discuss various specializations and course offerings. They also brief students about professional ethics, important policies, identity and working in groups, and community values. Formal opportunities have been put in place for networking with current students. For example, the School of Information Masters Association (SIMA) hosts an ice cream social for all orientation participants. Responding to the fall 2015 orientation survey about activities, students were especially keen on:

- Meeting faculty and second-year students
- Learning about specializations and courses
- Meeting the advising staff
- Learning about the community and living in Ann Arbor
- Participating in sessions about working on diverse teams

With the piloting of some elements of the future MSI curriculum occurring in the 2016-2017 academic year, the MSI Orientation is changing too, immersing incoming students in curricular aspects of the program before they start their first classes. Standard II.1c under the "MSI Orientation Experience (MORE)" heading describes the School's new Orientation.

Career Advising to Support Coherent Programs of Study

Throughout their tenure in the MSI Program, students receive individual and group career advising and counseling from both faculty and a team of four career services professionals who make up the UMSI Career Development Office (CDO). Advising is available through multiple access points:

- Scheduled individual meetings
- Weekly drop-in advising sessions
- Group advising sessions
- E-mail
- Phone
- Skype
- Google Hangouts

On an annual basis, students are asked to complete the CDO Satisfaction Survey (see appendix IV.9) that includes questions about career development, learning about the job search, and preparing for it. Based on a 39% response rate, survey results from the 2014-2015 academic year are:

- On average, over 700 career advising appointments are scheduled and conducted annually.
- 91% of students reported that the career advising they received from CDO contributed to their career and job search readiness
- On average, 95% of students report satisfaction with the career advising they receive

Here are students' responses about job search preparedness:

- *"From meeting with CDO advisors, I formed a better strategy for finding a job."*
- *"Great advice and preparation on how to interview for a job."*
- *"Resume and cover letter reviews made my applications stronger."*
- *"Career advisors helped me think strategically about companies to consider and how to network."*

Due to the heavy advising load and high-touch services provided, students expressed some dissatisfaction in terms of accessibility for in-person scheduled advising and appointment wait times that were as long as two weeks. To increase accessibility and lessen wait times, CDO plans to offer more remote and live chat sessions with students who have urgent needs and will hire an additional career advisor who starts in fall 2016.

Academic and Career Co-Advising to Support Coherent Programs of Study

UMSI practices a co-advising model of support for students to aid in planning both their academic and career goals concurrently as they progress through the MSI Program. Co-

advising group sessions led by an academic advisor and a career counselor are offered during pre-registration every year. Individual co-advising sessions are offered as requested and needed by students.

The co-advising model has proven effective in helping students think more critically and intentionally about their academic planning as it relates to their career goals.

Academic Advising to Support Coherent Programs of Study

Academic advising at UMSI is a continuous process that engages students in academic planning consistent with their personal and professional goals. UMSI students are encouraged to take an active role in shaping their educational experience, meeting regularly with faculty and staff to foster ongoing advisory relationships. UMSI's academic advising mission statement underlines the empowering nature of the School's advising program:

> *"UMSI academic advising empowers students to think broadly about their educational experiences and create meaningful academic plans that will advance their personal and professional goals. Through individual conversations, group programs and workshops, and resource sharing, advisors challenge and support students to become self-directed learners, informed decision-makers and engaged members of the UMSI community and beyond."*

Both faculty and professional staff provide academic advising to master's students. A professional-level academic advisor serves as the primary staff advisor to students. The director of admissions and student affairs also meets with students for academic advising. Given the diversity of courses and flexibility of the curriculum, advising is emphasized as an important part of the student experience. Of the 43% of students who completed the 2015 MSI Student Survey (see appendix IV.3), 87% had met with a faculty member for an academic advising appointment at least once, 66% had attended a group advising session, and 89% had attended faculty office hours at least once. Additionally, 71% met with the MSI academic advisor at least once. Over 30 student group leaders have been given training in peer advising and these student groups offer multiple peer advising sessions and office hours.

Information about academic advising is available to the UMSI community and interested applicants at the UMSI website's Academic advising page (https://www.si.umich.edu/academics/msi/msi-academic-advising). Key content pertaining to advising in the *MSI Student Handbook* (see appendix IV.1) is highlighted for students during orientation, and the *Handbook* always freely available to students on the MSI Intranet.

Academic planning tools are available for students (and advisors) to guide choices and decisions and to track progress towards degree completion. Within UMSI, students use Tracking and Planning (TAP) sheets to monitor their progress with regard to fulfilling degree and specialization requirements (see also standard II.3a); TAP sheets also help faculty and staff advisors keep track of a student's credits and degree progress. One side of the TAPS enumerates MSI Program requirements (see appendix II.6). Turning it over reveals a specialization-specific checklist enumerating core, required, and suggested courses, and distribution requirements for a particular specialization (see appendix II.7). TAPS include course offerings, credits, and terms, and these sheets are updated each year and always available to students on the UMSI intranet.

Students electing the Tailored Option are encouraged to do so early in their program and are required to do so before their term of graduation. This practice was implemented several years ago, and it helps to ensure that Tailored option students have a coherent academic plan while still giving them the opportunity to move into the Tailored option program after they arrive at the School.

The U-M Registrar has created an online degree audit tool within the U-M Wolverine Access System, the central system for online class registration, student billing, and a range of other online services and tools. The MSI degree requirements are encoded in the system, so that students can view an unofficial degree audit online, which indicates their progress towards various degree requirements.

The 2015 MSI Student Survey is a rich source of student input about what has been most valuable to them and their suggestions for improvements to the academic advising experience. Here are their comments:

- *"The student affairs and career development staff always made me feel like I was worth helping out. I feel like they gave me their attention and gave good advice/problem solving. Faculty advising has been hit or miss."*
- *"The professors care. They want me to succeed. It really shows."*
- *"Talking to my peers and meeting with faculty has been the most beneficial for me in academic advising. Getting advice from my peers on which classes they have taken that they have liked and what they found helpful has been helpful in choosing my courses. Additionally, speaking with faculty members teaching courses I am interested in is helpful in determining how they view the class and what their goals are as professors."*
- *"I found it valuable when the advisor was able to answer my questions quickly. Also, I found it valuable when faculty would give insights about why their classes would be helpful in my career (e.g. advice like, 'My class teaches you X, which is applicable to X positions' or 'If you want to do or be X, I recommend/don't recommend my course')."*
- *"The most helpful advice I received during my time at UMSI was from other students who had similar academic and career interests. Faculty and student affairs advising was also helpful, but it was at a higher level (i.e., more about choosing classes based on a career goal rather than the details of particular courses)."-*

In response to these data collected in the 2015 MSI Student Survey (conducted in winter term, 2015), a formal peer advising program was launched in fall 2015. MSI students were hired and trained as formal peer advisors working in the OSA. They are expected to provide pre-registration advising, gather resources and information for students and student groups, help regular walk-in advising times year round, and plan and support programming including group advising sessions.

IV.4b Students receive systematic, multifaceted evaluation of their achievements.

Students receive feedback and evaluation in multiple ways during the course of the program. In classes, students receive feedback in the form of grades and comments on exams, assignments, and projects. In group projects, students also receive both informal and formal feedback from their peers. When students are required to give presentations to

the class, they typically receive feedback from the instructor and their fellow classmates. Students also receive feedback from faculty and graduate student instructors during office hours or other appointments.

Through UMSI's Practical Engagement Program (PEP), students engage in reflection, self-evaluation and career exploration, and receive feedback from their on-site mentor or supervisor. The associate director for career development and career counselor give students feedback on their performance and progress towards stated learning goals and objectives, and, when appropriate, they link feedback on students' PEP experience to their academic planning and future career goals. Students also receive feedback and guidance on their reflective assignments from their peers who are also PEP participants.

CDO helps students prepare for their practical engagement experiences and/or credit-based internships through individual and group internship advising from a career counselor, peer advising from second-year students, attendance at internship-related workshops and programs, and employer engagement through on-campus recruiting activities, career fairs and networking events. Students consult iTrack, UMSI's online recruiting and job posting system, to search for and apply for internships and connect with employers (see standard II.3b). All UMSI students are required to have at least one resume reviewed by CDO staff before they can access iTrack; therefore, 100% of students experience one resume review from a career advisor/counselor.

CDO sponsors a Mock Interview Program for job-seeking students. When students participate in mock interviews, they receive immediate feedback verbally and through a post-feedback form from prospective employer representatives or from alumni volunteers. Students are always welcome to ask CDO staff for feedback on any component of the job search process.

IV.4c Students have access to continuing opportunities for guidance, counseling, and placement assistance.

UMSI's Career Development Office (CDO) offers tailored professional career development services for students from the moment students are admitted to the School, while they explore future careers and secure an internship search in their first year, and through their search for a professional job in their second year. In fact, UMSI alumni can freely access UMSI career services for a lifetime; this includes full access to iTrack, online career resources including workshop PowerPoint presentations, resume examples, field-specific job listings, and, on a limited basis, CDO's career consultation services.

CDO's comprehensive services and resources enable students to build a professional toolkit that serves them in navigating a successful career. CDO staff counsel students on career development topics and issues from self- and career-assessments, to career exploration, job and internship search readiness, and professional skill development. Career development topics can get complex, and examples of the more complex issues that CDO commonly addresses are dual-career issues, job searching in a tough economy, navigating a career change, the job search challenges that LGBTQ and international students face, and negotiating salaries.

Over the past six years, CDO has doubled its staff to meet the evolving and growing career development needs of UMSI students. The current CDO team is made up of three professional career development practitioners, an engaged learning program expert, an

employer recruiting/event coordinator, and three graduate interns who provide peer advising to students including resume reviews and assisting with the internship search process. Another career advisor joins CDO's team in fall 2016.

Beyond traditional and complex career services, CDO advises students engaged in experiential and engaged learning opportunities such as PEP, GIEP, ASB, and the service and community engagement activities students take on to test in the real world what they learned in the classroom. Advising, guidance, and consultation for these programs are led and managed by UMSI's associate director of engaged learning who excels in career development and engaged learning programs specific to international and domestic communities.

CDO tracks its activities pertaining to students, mentors, and employers, surveys them, and issues reports results on an annual basis. Below are key statistics on activities in the 2014-2015 academic year:

- Career counseling/advising appointments via phone, email, in-person appointments, and unscheduled drop-ins: 732
- Employer information sessions and on-campus interview schedules: 41
- Career workshops: 120
- Career fairs and networking events: 4
- Jobs posted to iTrack: 2,330
- Employer accounts created in iTrack: 1,397
- Resume reviews: approximately 400

Here are student comments from the CDO Satisfaction Survey:

- *"Career advising is always helpful."*
- *"I now have a strategy to my job search that makes sense."*
- *"Being able to meet with a career counselor to help me identify my problems and challenges in my job search helped me to identify solutions."*
- *"CDO provides lots of opportunities to connect with employers that I never knew about."*
- *"The industry expertise helped to figure out what companies want to see on a resume and in an interview."*
- *"I got my internship through the CDO!"*
- *"Very, very helpful. Very, very calming. Excellent advice."*

iTrack

CDO offers iTrack, a comprehensive job and internship search tool, to UMSI students and alumni to search for jobs and internships, post resumes for employers to view, as well as to research companies and access employer contacts.

To participate in internships and sign up for career development workshops and events students must register in iTrack. Thus, 100% of MSI students set up and maintain an account in iTrack, utilizing this tool to facilitate their job search. Students also rely on iTrack to submit their draft resumes for review by a career advisor.

Year after year, iTrack is reported as the most common job search method used by UMSI students to search for professional jobs and relevant internships. In 2015, students rated iTrack amongst their top three most effective job search tools.

Practical Engagement Program (PEP) Advising

UMSI's CDO manages the Practical Engagement Program (PEP). PEP provides students with monitored, mentored, and reflective credit-based internship experiences. Through online portfolios, reflective assignments, mentorship, and peer sharing, students are able to reflect on the short- and long-term impact of these experiences, gaining a comprehensive learning experience that will help them make more educated career decisions and providing opportunities for deeper-level learning as a result of applying what they learn in the classroom with practical experience and guided reflection in the real world.

Year after year, 90% to 95% of respondents to the UMSI Employment Outcomes Survey (appendix IV.8) indicate their PEP internship as one of the most valuable UMSI experiences impacting their job outcome, career success, and job satisfaction.

Alumni Connections

CDO offers students multiple access points to engage with alumni for career exploration, career mentoring, networking, and job-search advice:

- iNetwork: Made up of over 200 UMSI alumni volunteers who participate in this LinkedIn group to engage with students for career and job-search advice, and industry insight.
- Networking events: Every year, CDO sponsors a variety of alumni events where students can network, exploring career options, testing their job-search readiness, and gaining industry insights. A few examples are Speed Networking with the UMSI Alumni Society Board, Networking Meet and Greets, Networking Fair, Mock Interviews, alumni panels in specific industries, Day in the Life series, Portfolio Reviews, and a Resume Mixer that local alumni attend in fall to review and give students feedback on their resumes.

UMSI CDO Satisfaction Survey

Every year, CDO surveys students on their overall satisfaction with its services, resources, and programs. CDO staff use the results to make improvements so that future CDO services and programs meet students' needs. Below are highlights from the 2014-2015 satisfaction survey, which yielded a 39% response rate.

- With regard to student satisfaction with the range of CDO services, resources, and programs, 80% are satisfied, 18% are neither satisfied nor dissatisfied, and only 2% are dissatisfied.
- 91% of students report satisfaction with UMSI's career advising

In addition to tracking activity and measuring satisfaction, CDO has begun to integrate learning assessment into its satisfaction surveys to determine if CDO-provided services, resources, and programs are actually having a positive impact on students' learning about career development, job search readiness, and job outcomes. In terms

of measuring pre- and post-career development learning and job search readiness, students report the following after working with CDO in some way:

- 28% pre to 2% post reported they had no idea what they wanted to do and did not have a plan on how to get a job.
- 60% pre to 56% post reported they had an idea of what they wanted to do and were somewhat prepared with a plan on how to get a job.
- 12% pre to 42% post reported they knew what they wanted to do, and were completely ready and prepared on how to get a job.

Career Development Services Assessment: Internship and Employment Outcome Reports

CDO captures internship and first-destination employment outcomes data, analyzes them, displays some results on the UMSI intranet, and publishes other results in its freely available UMSI Employment Report (https://www.si.umich.edu/sites/default/files/2016_employment_report_0.pdf) and UMSI Internship Report (https://www.si.umich.edu/node/14569). CDO and OSA aggregate these data into reports bearing five years of comparative data on admissions, enrollment, internships, and employment. UMSI faculty and staff can use or reference these reports and their data from the UMSI intranet.

MSI Internship Outcomes

PEP is a required component of the MSI curriculum. PEP internships are structured, professional, and closely mentored experiences. Furthermore, they are carefully scrutinized to make sure they meet specific academic criteria for approval before students can get started. Just about everything connected with internships is managed and evaluated by CDO.

During the 2014-2015 academic year, a total of 234 internships were reported by MSI students, an 87% participation rate in internships amongst our first- and second-year cohorts. Because internships are a graduation requirement, 100% of graduating students meet the internship requirement. Most students (72%) complete full-time internships in the summer of three to four months in duration. A smaller percentage (15%) completes part-time internships during the fall and winter academic semesters.

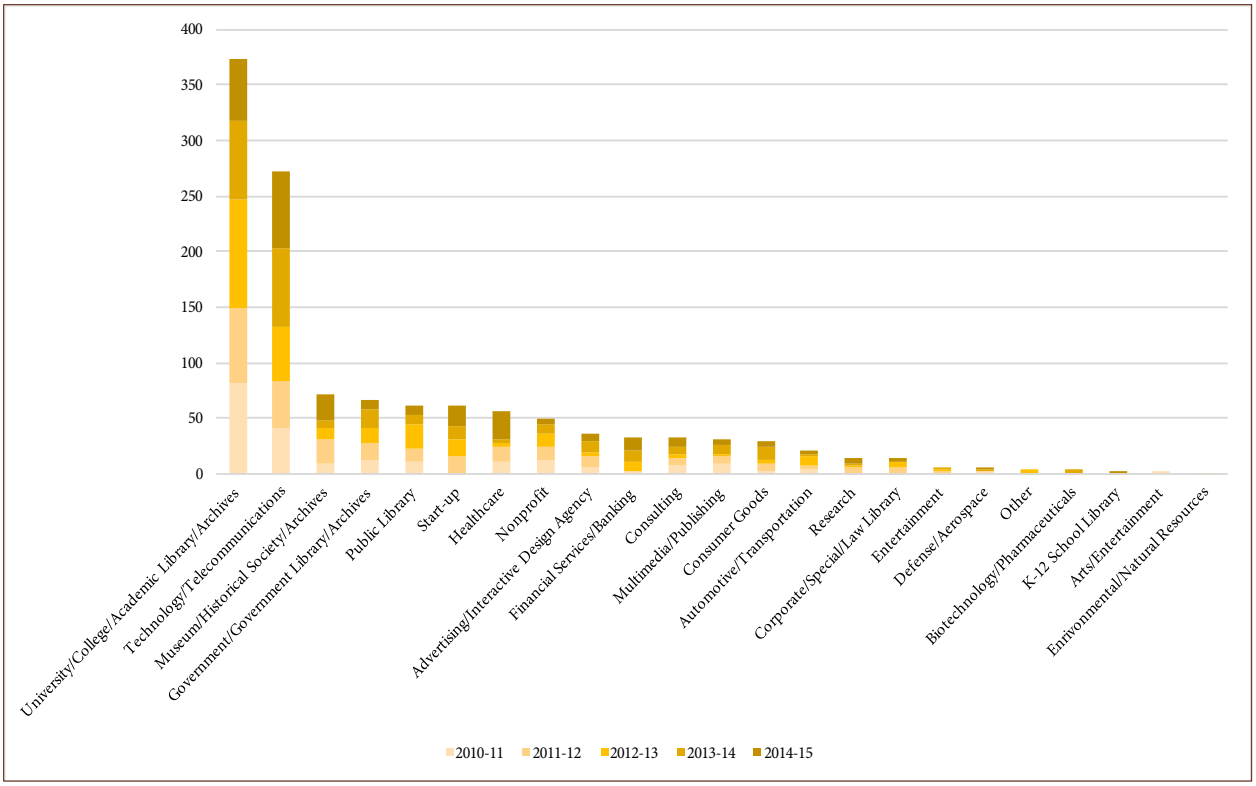
To ensure equity for part-time students who may be working full-time while going through the program, PEP offers a flexible model to provide opportunities for part-time students to take part in part-time internships throughout the year and to allow enough time to accumulate enough hours for credit. Part-time students can build an internship into their current job if the work is relevant to what students learn at UMSI and meets the other criteria for approved credit.

Internships in the private sector continue to increase year after year with 62% of approved PEP internships being reported in the private sector in the 2014-2015 academic year. The technology industry and academic libraries account for almost half (47%) of the approved internships. Here are the top five internship hosts:

1. Computer: software/internet (including telecommunications)
2. Academic library/archives
3. Healthcare
4. Museum/historical society/archives
5. Start-ups

Figure IV.2 shows master's internships by industry over a 5-year period, the 2010-2011 through the 2014-2015 academic years. UMSI students have become more likely to do internships in computer firms and less likely to do internships in academic libraries and archives. Healthcare has emerged as an internship setting, due to the creation of the UMSI Master of Health Informatics program.

Figure IV.2: Internship Trends by Industry, 2010-2015



Overall, most approved internships take place in the Midwest. For summer internships in particular, 65% are reported in Michigan, 11% in California, 4% in New York State, and 4% are international.

Industry can have a direct impact on internship salaries. Across industries, the range of average paid salaries reported was from $12.77 to $29.33 per hour. The overall average of all reported paid internships was $21.41 per hour. Because internship funding and budgets are limited in some libraries, archives and nonprofit organizations, we typically have a small group of students (10% to 15%) who secure unpaid internships for academic credit.

Students who want to participate in unpaid internships but are unable to do so for financial reasons are encouraged to apply to UMSI for support.

Networking remains the most effective method for BSI, MHI, and MSI students to find internships with 32% of students reporting their professional or personal contacts led to

an internship offer. Other effective methods for finding internships are iTrack, on-campus recruiting at UMSI, career fairs, alumni panels, and on-campus events. The majority of students (86%) report finding an internship within four months of starting their search.

UMSI internships report high satisfaction rates. Both mentors/employers and students are surveyed through iTrack at the completion of an internship. See appendices IV.5 and IV.10 for blank copies of these surveys. In 2015, 100% of employers reported they would mentor a UMSI student again. Also in 2015, 93% of students reported being satisfied with their internship experience in terms of adding value and impact to their skills and employability, increasing their knowledge and self-awareness to make better and informed career decisions, and having an overall positive impact on their career preparedness. Interestingly, 21% of students who completed an approved summer internship reported that they were offered professional employment there upon graduation.

Internship titles and employers of some recent MSI students are:

- Adult Services Intern: Farmington Community Library
- Analytics Intern: Bloomberg
- Archives Intern: The Henry Ford Museum
- Archives Intern: US National Park Service
- Business Intelligence Internship: Autodesk
- Data Mining Intern: ForeSee/Answers.com
- Data Science Intern: Community Health Informatics Lab
- Digital Asset and Reference Intern: Smithsonian Institution, National Museum of American History
- Digital Humanities Intern: JSTOR/Ithaka
- Medical Informatics Intern: Blue Cross Blue Shield
- Metadata Management Intern: University of Michigan Medical School Information Services
- Public Library Internship: Ann Arbor District Library
- Research Library & Archives Intern: Detroit Institute of Art
- Reference Intern: University of Michigan Law Library
- Usability Research Internship: AthenaHealth
- UX Design Internship: Amazon
- UX Research Intern: Yahoo
- Web Intern: Washtenaw County Government

MSI Employment Outcomes

CDO surveys UMSI graduates to identify their post-graduation plans and outcomes, collecting surveys for up to one year after graduation. UMSI's Employment Report is issued annually on June 30 and made freely available on the Internet. Highlights of the most current report published on June 30, 2016 follow.

Of the 187 MSI students who graduated in 2015, 149 completed an employment survey or reported information about their job in other ways, resulting in an 80% response rate overall. (Because graduates skipped some survey questions, figures IV.2 to IV.5 below report different respondent totals.)

In 2015, 95% of graduates reported securing professional jobs in their field of choice, 2% sought continuing education usually pursuing a PhD or second master's degree. Only 3% settled into a non-professional position. Figure IV.3 shows the types of professional positions secured by MSI graduates. Generally, MSI graduates secure innovative, diverse professional jobs in a wide range of work settings and positions. Tech industry jobs dominate with 41% of graduates finding employment there, up by 15% from the previous year. Coming in second place to the tech industry jobs are positions in academic libraries and archives at 13%, then public libraries at 3%, school libraries at 2%, and corporate libraries/archives at 2%. The remainder accounts for about one-third of graduates' new jobs, distributed into eight different categories such as financial services (9%), non-profits (4%), and start-ups (4%).

Figure IV.3. Types of Professional Positions Secured by MSI Graduates, 2015 (N=108)

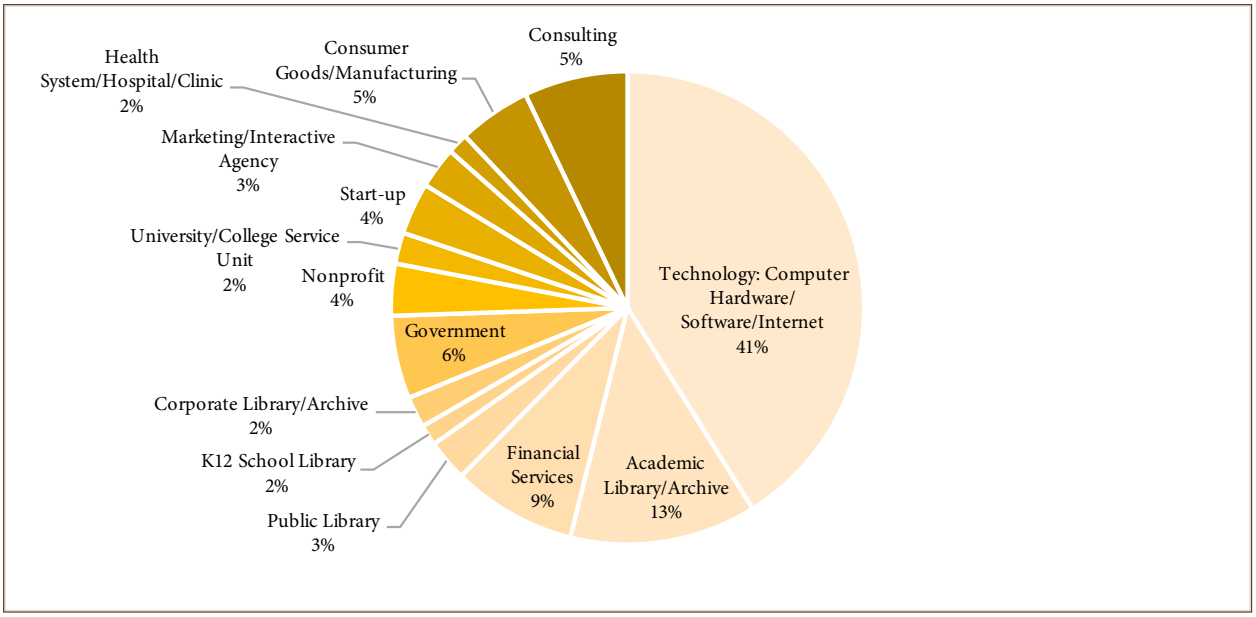


Figure IV.4 shows how long it takes MSI graduates to secure a professional position. Job search length varies considerably and is unique to each student's efforts and goals, as well as the recruiting process specific to the targeted industry and is not necessarily an indicator of job success. Overall, the average job search length for MSI graduates is three to four months between actively sending out applications and their acceptance of an offer. In 2015, 83% of graduates reported jobs within six months of graduation.

Figure IV.4. Job Search Length, 2015 (N=108)

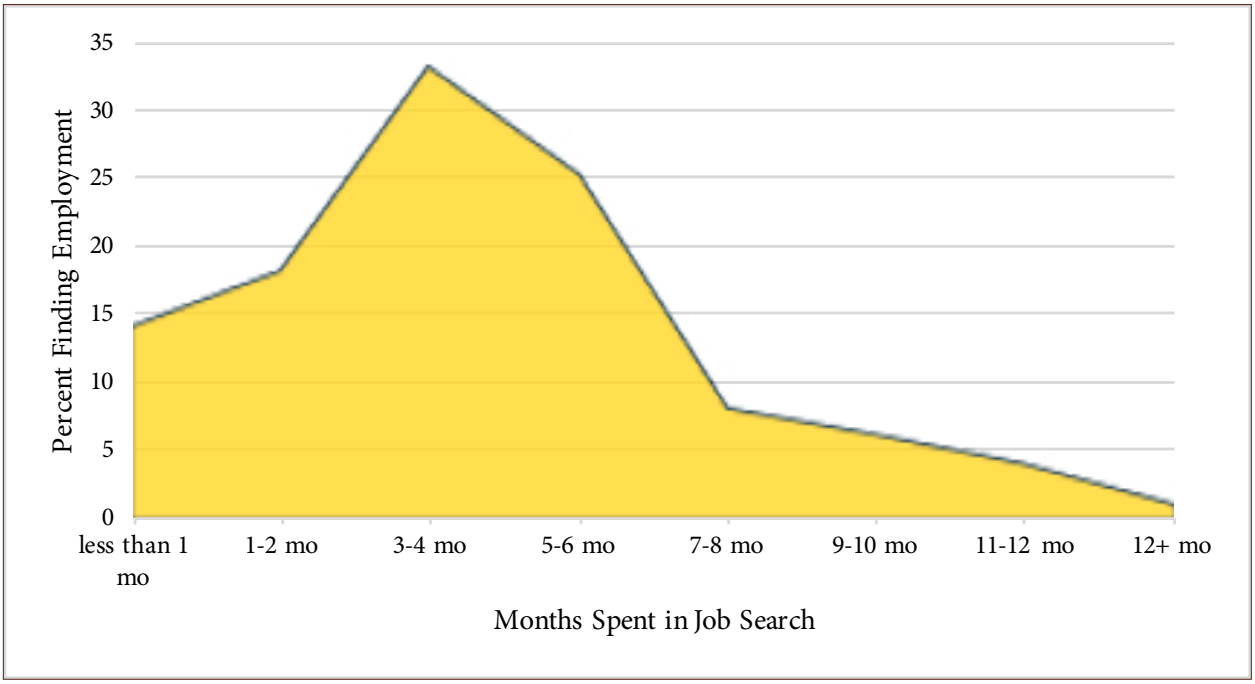


Figure IV.5 shows the salaries that MSI graduates earn by industry. Overall, MSI graduates' salaries remain competitive and currently hold the highest ranking in *Library Journal's* 2015 salary report. Across industries, the average salary is $68,000, which is the same as 2014 when the average jumped up 8% from the previous year. Industry-specific salaries are competitive with national averages. Due to industry diversity, organization type, type of position, and geographic location, salaries have a wide range, starting at $30,000 and reaching as high as $130,000. Figure IV.5's salaries for technology/computer software/internet, marketing/interactive agency, and financial services/banking are the highest at $88,000, $80,000, and $78,000, respectively. Its salaries for academic libraries/archives, corporate/special libraries/archives, public libraries, and school libraries are amongst the lowest at $49,000, $47,000, $40,000, and $35,000, respectively.

Figure IV.5. MSI Graduates' Average Salaries by Industry, 2015 (N=98)

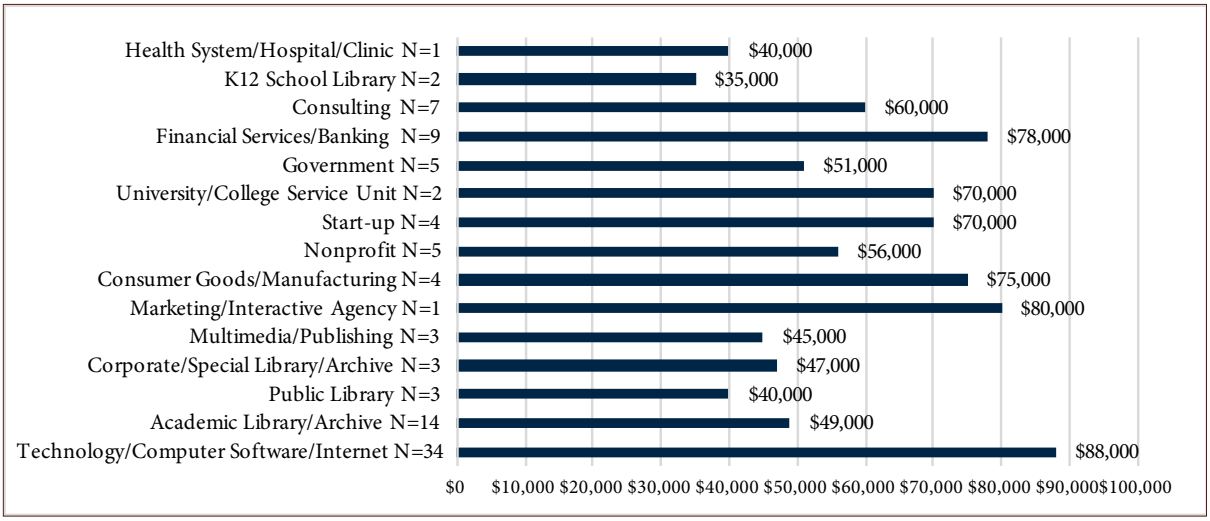
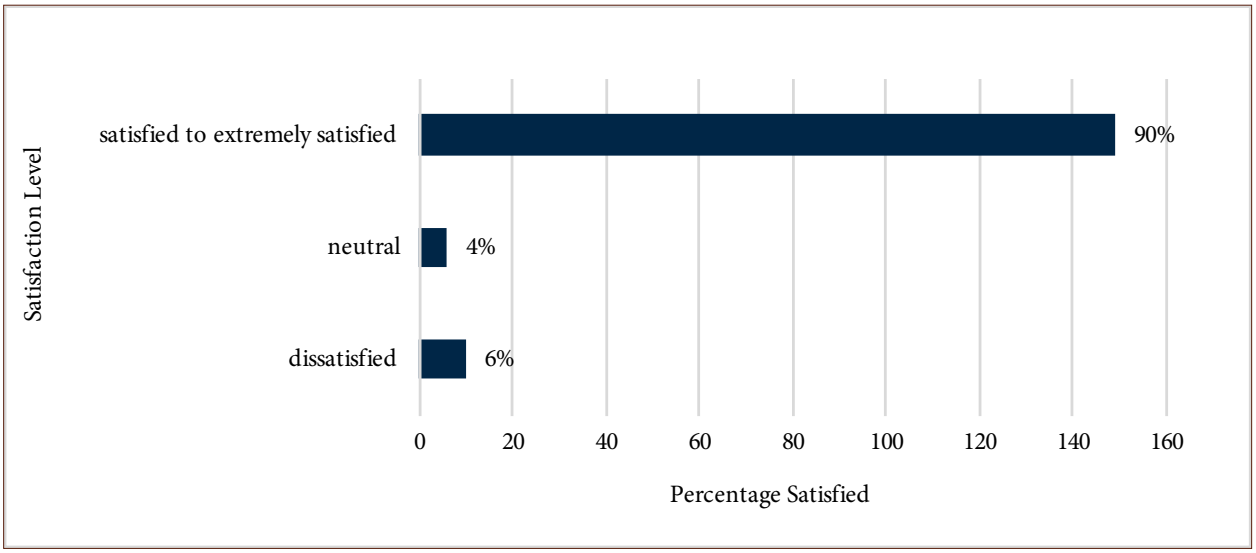


Figure IV.6 reports the satisfaction MSI graduates express with the professional jobs they secure. In this survey, administered approximately nine months after graduation,

90% of 2015 graduates reported satisfaction with their job outcome in terms of ideal fit for their careers. This result is consistent with previously reported levels of job-outcome satisfaction. For the small percentage of respondents who report dissatisfaction, several different factors account for their dissatisfaction such as difficulty finding a job from a distance, making the job search too focused in one geographic area, and limited employment opportunities in their preferred job outcomes.

Figure IV.6. Job-Outcome Satisfaction (N=149)



IV.5 The program provides an environment that fosters student participation in the definition and determination of the total learning experience.

UMSI provides an environment rich in instruction, research, policy, practical engagement, professional development, and social opportunities outside of the classroom. For example, the School averages more than one outside speaker per week. We offer multiple programs and workshops related to students' professional development, and skills enrichment. For example, the UMSI UX Design Clinic is a new engaged learning activity launched in 2014, giving students opportunities to serve as clinicians, providing user research and testing, workflow assessment and recommendation, and development of wireframes and websites for free to local non-profits, start-ups, and cultural institutions. All student-oriented activities and events are posted on the Student Events calendar on the UMSI Intranet. For a full list of UMSI's public activities, see the UMSI website's Events page (https://www.si.umich.edu/newsandevents/events).

In 2013, UMSI launched the Initiative for Information Impact (I3) to support and provide engaged learning opportunities for students through service, community, and global engagement programs. I3 is composed of a collection of curricular and co-curricular programs, such as the Global Information Engagement Program (GIEP) (https://www.si.umich.edu/global-information-exchange-program) which partners non-profit, research, and educational organizations in an international setting with carefully selected student teams. In 2014 and 2015, 19 students and 20 students, respectively, spent the winter term in Ann Arbor studying an identified information challenge proposed by a partner organization in India, transforming their ideas into social-impact projects, traveling to India in summer to work on-site, and piloting and handing off their solutions to their partner organizations.

Examples of their projects are the first disability access web portal in India and a data-driven performance metrics tool designed to improve the quality of care. GIEP is an UMSI curricular program, and thus, GIEP students receive six credits from the experience which fulfills the MSI Program's engaged learning requirement. In 2016, GIEP moved to Cape Town, South Africa, where 17 students worked on information challenges with non-profits and cultural institutions such as the League of the Friends of the Blind and the University of Western Cape Mayibuye Archive.

GIEP students provide this insight into their 2015 experience in India:

- *"I really liked the fact that GIEP is interdisciplinary, especially because opportunities like this are not very publicized across other schools at U-M. I got to interact and work with people who were in completely different fields from myself, and who taught me some valuable skills that I will carry me to my next opportunity, internship, and career."*
- *"It was a great all-inclusive experience that really provided a wide variety of real-world, international project management experience. It had some theory, but really quickly and easily went beyond that. Lots of opportunities to learn."*

Citizen Interaction Design (CID) is another new engaged learning program. It partners student teams with local municipalities for the purpose of creating information tools that fundamentally reimagine how citizens interact with their local governments. Students have been working with the city of Jackson since 2013 and will begin work in the Michigan cities of Ferndale and Traverse City in 2016. Students experience CID through a four-credit design course, a three-credit mastery course for second-year students, a summer fellowship, and/or other co-curricular workshops and events. Since CID's inception in 2013, over 130 students have taken part in either an internship or course associated with CID. Students enrolled in CID courses shared the following feedback:

- *"I loved that this course was a small part of my day filled with intense, thoughtful discussion. It made me think about issues in new ways and I felt it was deeply, and very appropriately, critical of issues in a way information academia could use more of. Is this the way we should be thinking about [a thing presented in theory]? And if you said no, why? And if you said yes, why? I'm not saying we always asked questions in that way but that that kind of attitude, and the willingness to bring a critical eye t[o] our 'ivory tower' institution (because that's clearly what we are) is really valuable. I'm very happy to have taken this course."*
- *"I enjoyed having the freedom to explore the problem with our partner and group members. It felt like this is how we might work with these issues in the context our future careers. It also highlighted skills for conflict resolution and troubleshooting."*
- *"This was such a unique course, getting us out of the classroom, learning about local government and a community. I loved working with my team and the importance placed on peer feedback. I enjoyed the class meetings."*
- *"When we got to present to our peers, and Jackson weeks were constructive and fun."*

Unique to UMSI is the Alternative Spring Break (ASB) program that matches students with (mostly) external organizations in capacity-building information projects during the week of spring break in late February to early March. A signature program of the School, over 100 students annually donate their time to work with public sector organizations

such as Freedom House (Detroit), American Library Association (Chicago), Media Burn Film Archive (Chicago), or the U.S. Peace Corps (Washington, DC) on projects that further the organization's goals such as organizing information, digitizing analog artifacts, and enhancing data and web services.

Students clearly embrace the importance of active involvement and professional development activities as part of the learning experience with a majority of MSI students reporting participation in one or more such activities during their tenure at UMSI. Over half of UMSI students attend the School's Networking Fair and Convocation. More than two-fifths of students report attending seminars, participating in Alternative Spring Break, and/or attending a brownbag lecture. About one-third of UMSI students reported participation in professional association events, primarily attending a local or national conference.

IV.5.1 Participate in the formulation, modification, and implementation of policies affecting academic and student affairs.

UMSI provides students with both formal and informal opportunities to participate in the formulation, modification and implementation of policies affecting academic and student affairs. Examples of their participation are:

- *MSI Program Committee.* Two students are selected by the UMSI Masters Association (SIMA) to sit on this committee.
- *SIMA Board.* Serves UMSI master's students across all degree programs, officers are elected by these students, and they meet regularly with the OSA leadership and periodically with the deans, participating in the formulation, modification, and implementation of policies affecting academic and student affairs. They hold regular office hours and annual town hall forums.
- *Ask the Deans.* Students are invited annually to an open Ask the Deans forum with the dean and the associate and assistant deans addressing (among other things) policies affecting academic and student affairs.
- *Surveys and focus groups.* These are many opportunities for students and alumni to provide input to UMSI's faculty, staff, and Leadership Team (LT). Examples include the MSI Orientation Evaluation, MSI Student Survey (annual), UMSI Employment Outcomes Survey, as well as alumni surveys, student focus groups, and alumni focus groups.
- *Alumni Society Board.* Alumni are asked by the School to serve on the Board. The Board meets with the dean and this generally occurs once annually in Ann Arbor.

Sixty-two percent of respondents to the 2015 MSI Student Survey agreed or strongly agreed that they "had opportunities to voice opinions and ideas about the program."

IV.5.2 Participate in research.

The Master's Thesis Option Program (MTOP) and independent study courses enable MSI students to engage in research as part of the MSI degree. MTOP program is a year-long, mentored research experience for second-year MSI students, culminating in the MTOP student's preparation of a written thesis and thesis defense. MTOP provides an excellent

opportunity for students interested in gaining substantial research experience and for those who may be considering furthering their studies with a PhD. Standards II.3.b and III.5 provide more detail on the MTOP.

An alternative is for students interested in research to enroll in an *Independent Study* course (791). To launch the independent study, students must identify a faculty advisor, convincing the advisor of the importance of their proposed research or accepting a research assignment from the faculty member that interests both student and faculty member. The student must also negotiate with the advisor on the number of credits, obtain the advisor's approval on a research proposal that is likely to include a reading list and research outcome(s), and agree on a regular meeting schedule throughout the term for advising, coordination, and research progress assessment. Some master's students (names italicized in the list below) get so involved with faculty and their research teams that they have co-authored papers, posters, and/or presented at conferences as a result of their interaction. Examples are:

- *Priya Kumar* and Sarita Yardi Schoenebeck (2015). "The Modern Day Baby Book: Enacting Good Mothering and Stewarding Privacy on Facebook." In Proceedings of the ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '15). Vancouver, Canada. March 14-18, 2015.
- Information Literacy in the Wild (2011). Kristin Fontichiaro, ed. http://www.smashwords.com/books/view/115254 or http://bit.ly/infowild. (This e-book presents research by *students* in the class *Information Literacy for Teaching and Learning* (641). They examined teaching, learning, information resources, and strategies from multiple angles. Their findings lend a fresh perspective to the existing body of literature.)
- Ixchel Faniel, Eric Kansa, Sarah Kansa, *Julianna Barrera-Gomez*, and Elizabeth Yakel. (2013). "The Challenges of Digging Data: A Study of Context in Archaeological Data Reuse." Joint Conference on Digital Libraries (JCDL).

Standard II.2.2 details course-based opportunities for MSI students to conduct research, and standard II.2.4 details student involvement in faculty research under "Relevant Research Projects."

IV.5.3 Receive academic and career advisement and consultation.

Standards IV.4a, IV.4b, and IV.4c detail UMSI's response to this standard.

IV.5.4 Receive support services as needed.

UMSI supports an academic success model providing opportunities for students to seek support from faculty and staff advisors and from campus services. Students in the MSI Program receive both academic and personal support through OSA, and primarily with the MSI academic advisor. Students who are struggling academically may be advised of tutoring resources, coached on how to discuss academic struggles with faculty, or advised to follow up in a joint meeting with the MSI advisor and the faculty instructor to discuss the situation and build a plan for success.

Students who are struggling personally work directly with OSA staff on a personalized plan to support their academic success. The U-M provides services including Counseling and Psychological Services (CAPS) (https://caps.umich.edu/), Services for Students with Disabilities (SSD) (https://ssd.umich.edu/), the Collegiate Recovery Program (CRP) (https://www.uhs.umich.edu/recovery), and Wolverine Wellness (WW) (https://www.uhs.umich.edu/wolverine-wellness). The MSI advisor works closely with these resources and refers students to them and to other healthcare resources as appropriate. Additionally, academic support for the student may be developed with the academic advisor in a highly personalized way. As needed, faculty and/or staff assisting the student follow up in regular meetings and check-ins to provide an environment that is likely to result in student success.

IV.5.5 Form student organizations.

MSI students have fifteen active student groups from which to choose, and many students are involved in more than one group related to their interests. Students can form and register new groups with the University and in recent years, students have done exactly this for the new groups Digital Humanities Collective, Information Alliance for Community Development, and Learning and Education Technology at the School of Information. Students also can and periodically do rename and refocus some continuing groups (such as Queer and Trans@SI, previously LILA). UMSI provides a modest budget to each organization (additional funds are available through the U-M Central Student Government, for student organizations that register). Receiving the most funds from UMSI is SIMA because it is comprehensive, serving master's students in both MSI and MHI programs and its obligations to host a number of formal events.

Current UMSI student organizations are listed below and are listed on the UMSI website with links to individual group websites at https://www.si.umich.edu/programs/msi/student-groups:

- A2 Data Dive
- American Library Association (ALA)
- Digital Humanities Collective (DHC)
- Health Informatics Society (HISO)
- Information Alliance for Community Development (IACD)
- Learning and Education Technology at the School of Information (LETSI)
- Multi-ethnic Information Exchange (MIX)
- Queer STS Reading Club
- Queer and Trans@SI
- School of Information Master's Association (SIMA)
- Society of American Archivists (SAA)
- Special Libraries Association (SLA)

- Student Organization for Computer-Human Interaction (SOCHI)
- Student Organization for Information Analysis and Retrieval (SOIAR)
- Youth and School Librarians (YASL)

UMSI student groups are active and vibrant, providing academic, professional development, and social activities for students. Groups typically join forces to offer activities collaboratively and even co-sponsor activities with OSA and/or CDO.

In the 2015 MSI student survey, respondents highlighted the following motivations and benefits for participating in student groups, either as members or as leaders:

- Networking
- Increasing skillset outside of the classroom
- Opportunity for service and professional growth

SIMA is the student government group that serves as the umbrella organization for all masters-level students. Students are automatically considered SIMA members upon their acceptance to UMSI. In addition to providing students with means to share their ideas and concerns, SIMA works with the hosts of Ask the Deans forums in fall and winter terms. SIMA also organizes an end-of-the-year dance (affectionately known as the "Prom") in the spring.

UMSI student groups host peer advising sessions, field trips to various museums, libraries, and cultural centers, movie nights, Wii gaming nights, brown bag talks featuring alumni, U-M professionals, and/or external experts. They co-sponsor career panels and resume review sessions with CDO. Most groups offer a welcome event in the fall and provide information to their members about relevant professional associations, meetings, and resources.

UMSI's assistant director for admissions and student affairs provides overall advising and guidance to student groups, and connects groups with relevant faculty for expert input and engagement. Each fall, a meeting is held for student group leaders to review policies and procedures such as room scheduling and fundraising and to discuss ideas for collaboration and coordination.

UMSI student organizations are provided with a locker where they can store group-related materials and web and file space where they can host a group website and store group documents. Each year UMSI transfers $100 into each registered student group's account, and account maintenance is provided through the U-M's Student Organizations Account Services Office. Additional funding is provided to help with SIMA's major events such as the "Prom." Other student groups may request additional funding for special events by submitting a request to OSA, which is evaluated and approved by the ADAA. Student groups also engage in fundraising to support their activities, such as selling mugs or t-shirts featuring UMSI's logo and/or the group's logo. Although student leaders from the various groups serve as central point of contact, UMSI faculty, staff, and administration welcome input from individuals and ad hoc groups of students.

In the 2015-2016 academic year, UMSI piloted a new Leadership Development Series involving programming devoted to student engagement and inclusion for UMSI student leaders. Echoing the holistic approach that characterizes the School's review of applications to the MSI Program, our goal for this series is to aid student development by providing inclusive environments, opportunities for connectedness, and better self-understanding, while students acquire and advance leadership skills sought by employers. By working with units across campus, such as the Spectrum Center (SC) (https://spectrumcenter.umich.edu/) and Office of Student Conflict Resolution (OSCR) (https://oscr.umich.edu/), OSA and CDO have developed sessions on various leadership dimensions and offered them to UMSI student leaders throughout the year. Here are the session titles:

- Introduction to Leadership Theory
- Conflict Resolution, Identity, and Leadership
- Myers-Briggs Type Indicator (MBTI) Personality Assessment
- A Final Reflection Activity

IV.5.6 Participate in professional organizations.

UMSI students have many opportunities to participate in professional organizations. Within the program, there are student or affiliate chapters for the American Library Association (ALA), Special Library Association (SLA), Society of American Archivists (SAA), and Association for Computing Machinery Special Interest Group on Computer-Human Interaction (ACM SIGCHI). These groups have robust participation, and elected student leaders receive OSA's support for programming and succession planning. In 2015, the UMSI ALA student chapter celebrated its 35th anniversary with an event connecting current students and alumni of this chapter together.

As an additional support for students to participate in professional organizations, UMSI provides a travel grant for students presenting at professional conferences. Class projects often work in alignment with these presentation options, and faculty and student groups provide direct support for students submitting their work. In the 2014-2015 academic year, 43 MSI students received UMSI travel grants funds totaling $37,000. These funds supported travel to conferences, such as Special Libraries Association (SLA), Society of American Archivists (SAA), Medical Library Association (MLA), Grace Hopper Celebration of Women in Computing, Computer-Human Interaction (CHI), and the iConference. Additionally, UMSI's ALA Chapter invites students to apply for the Student-to-Staff Program, completing a proposal and delegating selection to LIS specialization faculty. The winner works behind-the-scenes with ALA staff at each ALA Annual Conference and is able to attend meetings, programs, and other conference events in their spare time.

IV.6 Procedures are established for systematic evaluation of the extent to which the program's academic and administrative policies and activities regarding students are accomplishing its objectives. Within applicable institutional policies, faculty, students, staff, and others are involved in the evaluation process.

Multiple structures and procedures are in place to systematically evaluate the MSI Program's academic and administrative activities and policies relating to students and to make sure they achieve their intended objectives. These structures and procedures involve UMSI's LT, faculty, students, staff, alumni, employers, and advisory groups.

UMSI staff track student progress and participation and elicit their feedback, collecting, analyzing, and reporting these evaluation data on a regular basis. Collected are data on student enrollment, student persistence (retention), academic performance (degree attainment, probation status), co-curricular experiences, student involvement in student groups, events, and activities, internship outcomes, and job outcomes. We collect satisfaction data from students on learning outcomes from academic activities, learning outcomes from co-curricular experiences, services, resources, policies and practices. We also collect satisfaction data from employers, mentors, and client-based project sponsors on how students perform in their employment, activities, or initiatives.

The primary annual surveys we conduct include the MSI Orientation Evaluation which collects information about the student experience from admission and through the orientation program (appendix IV.2); the UMSI CDO Satisfaction Survey which captures student input on their curricular and co-curricular experiences, school climate, participation in student groups, and conference attendance (appendix IV.9); and the UMSI Employment Outcomes Survey which tracks the employment outcome of recent graduates (appendix IV.8). Other surveys are done more frequently. The CDO Employer/Mentor Survey is administered to every person mentoring a UMSI student intern and assesses employer satisfaction with the student's academic preparation and perceived effectiveness of the internship (appendix IV.5). Likewise, at the end of an internship, every intern fills out the CDO Student Internship Survey which assesses student satisfaction with and perceived effectiveness of the internship and the mentorship (appendix IV.10). The CDO Employer Survey is done biannually and provides feedback on the quality and employability of our students (appendix IV.4).

Our analysis of evaluation data and subsequent reports leads to changes in services, policies, and practices. In the 2015-2016 academic year, we made changes to the MSI Orientation program and increased access to career advising by offering more group advising as a result of student and faculty input.

Evaluation data, analyses, and summary reports are shared with the MSI Program Committee, the UMSI dean and associate deans, the LT, as well as faculty and staff. Data are used in strategic planning for recruitment, orientation, career development programs, and entrepreneurship initiatives.

Direct engagement with students is another means for evaluation of policies and activities. To this end, OSA and CDO collect input via student-led town halls, student leader meetings with OSA/CDO as well as with the deans, focus groups with students, and assistant dean office hours. Student representatives participate in OSA program development and program-planning teams for orientation, new student programming, and current student

programming. CDO works with student liaisons from UMSI student groups to help evaluate policies and activities for students.

The School's standing committees also provide a means to engage in evaluation of academic and administrative policies. For example, the MSI Program Committee includes faculty members as well as two student members and one staff member. This Committee addresses policy issues regularly, whether included in the annual charge from the associate dean, or identified as needing attention otherwise. The review of policy and practice includes evaluating relevant data, bringing in experts to discuss ideas and proposals, and engaging in committee discussion to reach decisions. Here are several more examples:

- In the 2013-2014 academic year, the Diversity Strategic Planning Committee conducted an evaluation of applicants, admitted, and matriculated students. The evaluation demonstrated that minority applicants were as likely to be admitted as white applicants and that minority admitted students were more likely to accept UMSI's offer of admission than non-minority admitted students.
- In the 2014-2015 academic year, the MSI Program Committee evaluated admissions decision-making policies. When faculty and staff participated in calibration exercises for application reviews, the Committee reconfirmed that there was a high degree of consistency between faculty and staff application reviewers.
- In the 2015-2016 academic year, the MSI Program Committee reviewed key policies associated with PEP and provided input on policy changes.

Some additional ways that we systematically evaluate whether academic and administrative policies and practices related to students are achieving desired objectives include the engagement of the UMSI External Advisory Board (EAB), the UMSI Alumni Society Board, and the UMSI Entrepreneurship Advisory Board. For example, EAB regularly addresses student topics as part of its annual meeting, including diversity recruitment, entrepreneurship programming, and the future direction of the MSI curriculum. The Alumni Society Board has provided input on program development and policies related to scholarships, student-alumni engagement, and student philanthropy. The Entrepreneurship Advisory Board has been an invaluable source of information and advice for developing and refining the School's Entrepreneurship Program.

Several years ago, a major administrative shift occurred for the MSI Program. As noted in our 2010 self-study, the administrative oversight of this program was moved from the U-M's Rackham Graduate School to the School of Information to increase efficiency and effectiveness.

IV.7 The program has explicit, documented evidence of its ongoing decision-making processes and the data to substantiate the evaluation of student learning outcomes, using appropriate direct and indirect measures as well as individual student learning, using appropriate direct and indirect measures.

The primary decision-making bodies for the MSI Program are the MSI Program Committee, UMSI faculty at large, and the Associate Dean for Academic Affairs (ADAA). The MSI Program Committee meets regularly during the academic year and provides primary decision-making related to course approvals and course revisions, curriculum changes, academic policy

changes, student admissions criteria, and scholarship decisions. Evidence of MSI Program Committee's decision-making is maintained through formal minutes, and these minutes are maintained in an intranet-based file for record-keeping purposes. Substantive issues that have larger impact are brought for a full faculty discussion and vote, such as changes in program requirements, new areas of focus in the curriculum, and the transition to a future, post-specialization curriculum.

The Associate Dean for Academic Affairs (ADAA) maintains oversight of the MSI Program Committee, provides the Committee's annual charge, leads the overall efforts for teaching and learning, and has oversight of student affairs, career development, and engaged learning. The ADAA delegates responsibility for student affairs and career development to the assistant dean for academic and student affairs (ADASA). The ADASA oversees decision-making for these areas in consultation with the ADAA, MSI Program Committee, and UMSI faculty at large.

Each semester, the U-M Registrar's Office administers student course evaluations campus wide and sends back course-specific evaluation data and summary reports to individual faculty. UMSI's dean, ADAA, and ADSAA are also privy to these data and reports, and they review ratings and comments for all courses. The ADAA discusses issues and concerns with regular faculty, and the ADSAA discusses issues and concerns with intermittent lecturers and GSIs and uses course evaluation data to inform decisions about future course offerings, teaching assignments, and instructional support to advance student learning outcomes.

At the program level, direct measures of student learning outcomes include graduation rates, average GPA, achievement of stated internship goals, and internship completion rates, while indirect measures are employment outcomes and satisfaction rates along with feedback from employers who hire UMSI graduates. At the individual level, direct measures of student learning outcomes are course grades and more specifically, feedback on course projects and assignments, achievement of individual learning goals for required, credit-based internships and achievement of learning objectives, and feedback from mentors and project sponsors in specific programs such as ASB, UX Design Clinic, and GIEP. Indirect measures are attainment of high-quality internships and jobs with commensurate high levels of student and employer satisfaction. Monitoring all these measures on a regular basis, the LT, faculty, CDO, and OSA are confident that they are consistently strong indicators of student success and successful student learning outcomes. Other mechanisms for evaluating how the program meets its objectives are discussed in standard I.1.2.

IV.8 The program demonstrates how the results of the evaluation of student learning outcomes and individual student learning are systematically used to improve the program and to plan for the future.

Program planning and program improvements are directly informed by our evaluations of student learning outcomes on an individual and program level. Faculty members frequently make changes to their course content, format, pedagogy, and evaluation methods as a result of student feedback from optional midterm course evaluations and mandatory end-of-semester evaluations. Evaluations of student learning outcomes in career development and engaged learning programs inform continuous improvement in program design and implementation.

In particular, CDO has made a significant effort over the past several years to improve the School's systems and practices to best support student fu, in particular, to foster reflective learning through the internship experience. These efforts have relied on evaluations of students' and employers' experiences with credit-based internships (appendices IV.5 and

IV.10). We have regularly evaluated the market to ensure we are using the best available e-portfolio tool and have consulted with the U-M's Division of Student Affairs Research Office on how to align our e-portfolio practices with cutting-edge, integrative learning pedagogy.

Student learning outcomes data and individual student learning needs informed the current and ongoing MSI curriculum reform, with full launch slated for fall 2017 (see standard II.1b for details). Additionally, gaps in technology skill levels have been identified, and a new technology course sequence is being implemented beginning in the 2016-2017 academic year. An interest in helping students achieve higher levels of expertise has led to the development of mastery courses preceded by a set of prerequisite and required courses, with a set of pilot mastery courses available in the 2016-2017 academic year and with full deployment of the future curriculum for the cohort entering in fall 2017.

Standard V ADMINISTRATION, FINANCES, AND RESOURCES

V.1

The School is an integral yet distinctive academic unit within the institution. As such, it has the administrative infrastructure, financial support, and resources to ensure that its goals and objectives can be accomplished. Its autonomy is sufficient to assure that the intellectual content of its program, the selection and promotion of its faculty, and the selection of its students are determined by the program within the general guidelines of the institution. The parent institution provides both administrative support and the resources needed for the attainment of program objectives.

V.1a

The School is an integral yet distinctive academic unit within the institution. As such, it has the administrative infrastructure, financial support, and resources to ensure that its goals and objectives can be accomplished.

The University of Michigan School of Information (UMSI or School) is one of 19 schools and colleges, which together comprise the University of Michigan (U-M) in the city of Ann Arbor. UMSI is established as an independent organization within the U-M by Regent Bylaw Chapter XI Section 11.29 (http://www.regents.umich.edu/bylaws/bylaws11a.html#29). The Bylaws of the Board of Regents of the U-M state that the management of the affairs of schools and colleges, subject to regental approval, is placed in the governing faculties, the deans, and the executive committees of each school and college. This bylaw further states that the executive functions of UMSI shall be performed by a dean (Section 11.29).

In practice, management at the U-M is very decentralized from the center (University) to the schools and colleges. Most decision-making authority resides with the dean. At UMSI, aspects of this authority are further delegated to associate deans, faculty, and senior staff reflecting a commitment to place decision-making authority closest to operations. The dean also promotes information sharing and seeks input and advice from the Dean's Advisory Committee (DAC), faculty, student leaders, and staff. As described in standard I, decisions, strategic planning, and goal setting are done with the School's vision and mission statement (see standard I.1.1) in mind.

V.1b

Its autonomy is sufficient to assure that the intellectual content of its program, the selection and promotion of its faculty, and the selection of its students are determined by the program within the general guidelines of the institution.

The affairs of the School include the intellectual content of its degree programs, the selection and promotion of its faculty, and the selection of its students. U-M schools and colleges report to the provost and executive vice president for academic affairs. UMSI operates in accordance with the University bylaws and standard practices and its own policies and procedures.

UMSI manages and determines the intellectual content of its degree programs. Once the University and the regents approve a degree offering, the faculty of the school or college control the curriculum in support of that degree, subject to fulfilling the commitments made in the specification of the degree. That is, course design, course approval, and faculty teaching assignments are made entirely within the School, with no approval or direct oversight from outside the School. The MSI Program Committee is responsible for overseeing the Master of Science in Information (MSI) Program including reviewing goals and policies, recruiting and admitting students, selecting scholarship recipients, and developing the curriculum including adding, merging, and eliminating courses. Criteria for the selection of students is set by UMSI's program committees, such as the MSI Program Committee. Major curricular changes may require decisions that are brought to the entire governing faculty for a vote; however, implementation details rest with the MSI Program Committee, the Office of Student Affairs (OSA), and the associate dean for academic affairs (ADAA). The MSI Program Committee works with OSA to ensure that the MSI meets the needs of the students and faculty. Making up this Committee are a faculty chair appointed by the ADAA, several faculty members appointed by the ADAA, ADAA (ex officio), two master's students elected by the School of Information Masters Association (SIMA), and two OSA support staff. The ADAA updates the Committee's charge on an annual basis.

The Rackham Graduate School confers all PhD degrees at U-M and oversees many other graduate programs (both master's and certificate programs). For these degrees, Rackham establishes baseline practices, policies, and standards (e.g., for admissions and for degree requirements), but each school or college retains responsibility for the content of the degree, and for policies and practices specific to their students. As noted in our 2010 self-study, the administrative oversight of the MSI Program was moved from the U-M's Rackham Graduate School to the School of Information in 2010 to increase efficiency and effectiveness. This was a bold move that involved substantive policy review; input from faculty, staff, and students; and considerable deliberation by the School's Leadership Team (LT).

To effect the shift, the School had to review all academic and administrative policies, adopting some of the Rackham Graduate School's policies with no or minor changes and greatly altering others. An example of the latter was moving from an unusual 9.0 grading scale to a more conventional 4.0 scale. Additionally, the School made sure that any and all funding that students received from Rackham (such as travel grants) would be offered at the same or greater level from UMSI. Ultimately, we greatly improved efficiency and clarity in the admission process. The School's policy review and development period involved input from students, staff, and faculty. With this input along with benchmarking data, the ADAA confirmed most policy decisions. For larger changes, such as changing

the grading scale from 9.0 to 4.0, a student survey was conducted and a full faculty vote taken.

The shift from Rackham to the School has been in effect now for several years. As early as the first year of the shift, benefits were identified such as efficiency gains due to speedier admissions processing and fewer student concerns about working through two units—UMSI and Rackham—to answer admissions, curriculum, and enrollment questions. The analysis of the UMSI Career Development (CDO) Satisfaction Survey data (see appendix IV.9 for a blank copy of the survey) did not identify any concerns with the shift, and instead, students expressed appreciation for the new grading scale and for UMSI's commitment to create its own versions of Rackham funding sources such as student emergency funds and travel grants.

Within two years of the shift, incoming students entering the program had no experience with the earlier Rackham-based model. More than half a decade has passed, and at no point have UMSI students or faculty suggested revisiting the shift from Rackham to the School. Since the shift, new School policies have been instituted to respond to changing needs. The School continues to calibrate and consult with Rackham about policies and practices. On occasion, we have noted that Rackham has looked to UMSI for best practices, especially with regard to student recruitment and student life activities.

UMSI manages and selects its own faculty and plays a major role in the U-M's faculty-promotion process for UMSI faculty. Promotion and tenure decisions are made by the UMSI Promotion and Tenure (P&T) Committee which is advisory to the dean. The P&T oversees all promotions. It consists of all professors and associate professors with tenure and research associate and full professors. Associate professors with tenure eligible for promotion to full professor will only be reviewed by the full professors with tenure, i.e., faculty will not be reviewed by those in or below their own rank. Promotion cases are forwarded to the Provost (and in the case of research-track appointments, to the vice president for research), who review the recommendation and either deny it or forward it to the regents for final approval. No other academic units have a controlling role in faculty appointments, tenure, or promotion decisions made by the School, except in the case of joint appointments. Standard III.2a discusses the UMSI promotion and tenure process and appendices III.6 through III.11 provide details of the criteria and processes.

When a faculty member is jointly appointed between UMSI and another unit, one of the units is, by agreement, the "home" administrative unit. The home unit is responsible for deciding when to review faculty for promotion. When such a review is commenced, a subcommittee of the P&T that includes a member from the other unit, is appointed cooperatively by the ADAA at UMSI and the equivalent administrative officer at the other unit. The home unit proceeds with a normal full review process.

When the tenure and/or promotion materials are complete, the other unit is notified, and it proceeds with its own review based on the information provided. Each unit may reach a different conclusion; generally, if the home unit reaches a negative decision, the other unit will defer. The recommendations of both units are forwarded to the Provost's Office.

V.1c The parent institution provides both administrative support and the resources needed for the attainment of program objectives.

Management and control of financial resources are also decentralized at the U-M. Tuition revenue from the School's enrolled students is credited directly to UMSI's general fund. Sponsored research funds are managed directly by the grant's principal investigator with support from UMSI's Office of Research and the U-M's Office of Research. Any overhead (indirect costs) from externally sponsored research accrues directly to UMSI; therefore, to the extent that we can influence the research funding we receive, we control this part of our budget as well. This was one of the rationales for the strategic investment planning in the large-scale research program discussed in standard I.4.1. To support large-scale research, UMSI added additional staff to its Office of Research to coordinate efforts to help faculty make the connections necessary for submitting a successful large-scale research project and develop the infrastructure required to support large projects. The additional capacity helped Associate Professor *Tiffany Veinot,* who examines health information behavior for those with chronic illnesses, secure a $6.7 million grant from the Patient-Centered Outcomes Research Institute (PCORI). UMSI has its own Office of Development and Alumni Relations and, like tuition and research, funding gifts and income on invested gifts accrue directly to the School. We also receive a general fund supplement from the provost. This supplement represents additional support provided to the School beyond activity based on tuition, sponsored research, and gifts. As noted in the budget process above, this amount is closely linked to UMSI's strategic goals. The amount may change at the discretion of the provost to influence policy and strategic priorities of the U-M.

To provide support for central University activities, such as the University Library, each unit pays a general assessment of 20.95% on all non-tuition expenditures to the University. The University also makes an enrollment-based assessment to each academic unit to support central financial aid. The assessment rates are modest and the same across all schools and colleges.

As is apparent, UMSI has considerable autonomy over its revenue and responsibility for generating that revenue. Likewise, we have considerable autonomy over our expenditures. Unlike most universities, tenure-track faculty positions at the U-M are not allocated as "approved slots" by the central administration. Subject to the availability of funds, the UMSI dean decides how many faculty to hire in different areas to best accomplish the School's mission, goals and objectives.

Support of the School from the parent institution remains very strong. The U-M has invested heavily in several of the School's strategic initiatives, particularly in the area of engaged learning (see standards I.1.2 and I.4.1 and much of chapter II, especially standard II.2.4), and it continues to provide the necessary infrastructure and support critical to our success.

The U-M's fiscal year (FY) begins July 1 of the calendar year and ends on June 30 of the next. Figures V.1 and V.2 show revenue and expenditures, respectively, for FY 2016. The proportions of these elements do not change drastically from year to year. Table V.1 shows UMSI's financial profile for the past four years FY 2013 to FY 2016 where UMSI's actual revenue and expenses for FY 2013-FY 2016 are outlined. Table V.1 shows that the largest source of revenue is tuition and fees which ranged from 12 to 16 million over that period. The next highest source of revenue is allocations from the provost (General Fund

direct allocations and supplements for special projects). Together these revenue sources make up the General Funds Total in figure V.1. The major expenditure is compensation or personnel (48%). Compensation includes wages and benefits for all faculty, staff and GSAs. This is followed by financial aid expenses (19%) which includes all central and unit provided financial aid (scholarships, fellowships, and tuition grants). Sponsored research expenses include all compensation, aid, and other expenses paid from sponsored funds (10% of all expenses)(see figure V.2). Please notice a reference to the University tax in figure V.2 which makes up 12% of the expenses. This is a mandatory charge on all expenditures (except a few categories of expenditure such as scholarship aid to students and capital building or equipment) that goes to the provost to fund central university services, such as library and technology units.

Appendix V.1 is the 5-year budget projection covering fiscal years 2015-2016 through 2019-2020. Revenue is indicated by "sources" and expenditures by "uses." The projection for this period assumes a long-term increase in the percentage of non-resident master's students and an increase in general funds due to the growth of the BSI Program. UMSI has typically received a yearly increase in the general fund balance due to a growth in enrollment that has outpaced the growth of UMSI's faculty and staff. As a result of the strategic investment planning process in 2012 (see standards I.1.2 and I.4.1), UMSI executed a planned growth in faculty lines and support staff as well as several engaged learning initiatives to reduce its fund balance. We continue to hold some reserves for long-term space planning and project a return to small year-end increases in our fund balance.

In addition to critical general fund support from the parent institution, UMSI receives substantial support from foundations, the federal government, and donors to pursue its mission of teaching, research, and service, and educating leaders who will use technology to create a better world. (Table III.11 summarizes the amount (in millions of dollars) of external research funding awarded to UMSI faculty and researchers for fiscal year (FY) 2011 through the first two months of 2017.) Figure V.1 shows total operating and sponsored expenditures for FY10-FY16. Note that the amount awarded in a particular year (Table III.11) differs from the research dollars expended in the same year (Figure V.1). This is because award amounts generally cover multiple years and the expenditures from grants rarely, if ever, occur all in the same year the grant was awarded. Our recent growth in faculty and enlargement of the Office of Research and faculty mentoring programs have yielded excellent growth in numbers of proposals and total funding received by UMSI. We experienced a drop in sponsored expenditures due to completion of several projects; however, we expect expenditures to increase again as recently funded projects begin.

Figure V.1. Operating and sponsored expenditures.

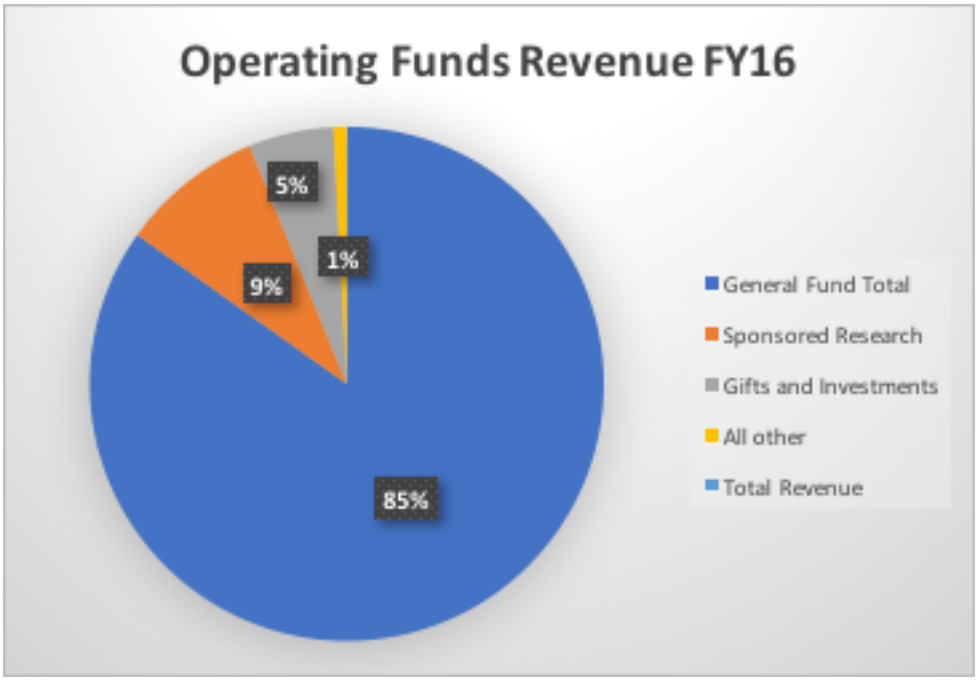


Figure V.2: Expenditures, FY 2016.

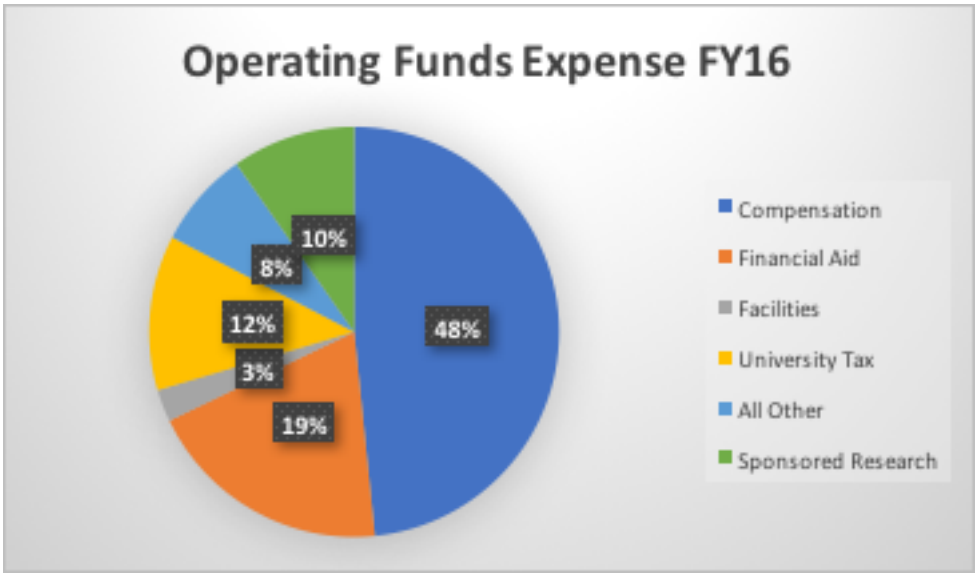


Table V.1: Revenue and expenditures, 2013-2016.

	FY13	FY14	FY15	FY16
General Fund Supplement	$ 5,588,621	$ 5,447,700	$ 5,717,424	$ 5,970,162
Tuition and Fee Revenue	$ 11,953,745	$ 13,503,133	$ 17,190,989	$ 16,177,207
Application Fees	$ 38,528	$ 37,106	$ 42,162	$ 41,344
Indirect Cost Recovery	$ 1,000,000	$ 980,000	$ 980,000	$ 1,102,856
General Fund Transfer	$ 2,664,267	$ 2,312,857	$ (836,822)	$ 854,575
General Fund Total	$ 21,245,161	$ 22,280,796	$ 23,093,753	$ 24,146,144
Sponsored Research	$ 5,477,726	$ 5,755,575	$ 4,678,877	$ 2,563,259

	FY13	FY14	FY15	FY16
Gifts and Investments	$ 1,159,522	$ 2,085,486	$ 1,708,621	$ 1,516,021
All other	$ 183,690	$ 156,478	$ 160,756	$ 235,792
Total Revenue	**$ 28,066,099**	**$ 30,278,335**	**$ 29,642,007**	**$ 28,461,216**
Compensation	$ 10,470,430	$ 12,190,210	$ 13,540,249	$ 14,020,086
Financial Aid	$ 4,359,806	$ 4,039,813	$ 4,742,398	$ 5,647,909
Facilities	$ 572,759	$ 620,219	$ 637,801	$ 732,244
University Tax	$ 2,503,606	$ 2,592,753	$ 2,975,742	$ 3,544,818
All Other	$ 1,385,837	$ 2,658,902	$ 2,141,926	$ 2,211,145
Sponsored Research	$ 5,509,115	$ 5,062,759	$ 4,796,748	$ 2,820,124
Total Expense	**$ 24,801,553**	**$ 27,164,656**	**$ 28,834,864**	**$ 28,976,326**
Net Revenue (Expense)	**$ 3,264,546**	**$ 3,113,679**	**$ 807,143**	**$ (515,110)**

V.2

The School's faculty, staff, and students have the same opportunities for representation on the institution's advisory or policy-making bodies as do those of comparable units throughout the institution. Administrative relationships with other academic units enhance the intellectual environment and support interdisciplinary interaction; further, these administrative relationships encourage participation in the life of the parent institution. Decisions regarding funding and resource allocation for the School are made on the same basis as for comparable academic units within the institution.

V.2a

The School's faculty, staff, and students have the same opportunities for representation on the institution's advisory or policy-making bodies as do those of comparable units throughout the institution.

The faculty, staff, and students of the School of Information have the same opportunity to participate in the life of the University as do those of other, comparable-sized units. (For a discussion of faculty involvement on university committees, see standard III.2b and Table III.6.) Fundamental to the governance of the University is that each of the U-M's 19 schools and colleges are coequal in autonomy and authority and in rights to participate in the life of the University. For example, the dean of each U-M school and college reports to the provost and serves on the Academic Program Group (APG), which is chaired by the provost. The APG meets monthly to discuss important University topics, share information, and provide input on University policy and strategy.

Opportunities to participate in the general life of the University are communicated to each school or college by e-mail and campus mail. Generally, the dean is asked to recommend one or more individuals to participate in special groups to represent UMSI's interests. The dean also serves on a variety of University-level committees and task forces.

All faculty are members of the Faculty Senate. UMSI faculty are proportionally represented on the Senate Assembly, a body of faculty that advises the U-M President on the management of the University community. UMSI graduate students have the same rights and opportunities to participate in advisory and policy-making bodies of the University as do all other graduate students. UMSI staff have the same status as other academic unit staff in the University, and they serve regularly on advisory and policy-making bodies.

V.2b

Administrative relationships with other academic units enhance the intellectual environment and support interdisciplinary interaction; further, these administrative relationships encourage participation in the life of the parent institution.

As a coequal school within the University's governance structure, UMSI has administrative relationships that enhance its intellectual environment and support interdisciplinary interaction. Because the dean of each school or college reports directly to the provost, we have access to the highest level of the University administration disproportionate to our size.

The UMSI dean meets regularly with the deans of the College of Engineering and the College of Literature, Science, and the Arts (the two largest units at U-M) as well as the dean of the School of Public Health (SPH) with which we have a joint degree. These three units collaborate in a variety of ways including support of joint faculty appointments. The UMSI dean meets monthly with the U-M Library dean to collaborate on projects of joint interest between our two units.

Senior staff managers and staff professionals play leadership roles in campus initiatives. For example, communications and development staff support UMSI's leadership role in the broader community through outreach and partnership building. Here are more examples of UMSI staff participation on U-M committees, groups, and initiatives:

- Academic Services Board
- Benefits Policy Advisory Committee
- Budget Administrator Group
- Facilities Planning Group
- Financial Unit Liaisons
- Human Resources Communication Group
- Human Resources Management System Unit Liaisons
- IT Commons
- Merit Aid Advisory Group
- Process Improvement Advisory Group
- Research Administrators Network
- Research Unit Liaison
- Shared Services Governance
- Student Administration Unit Liaisons
- Student Records, Curriculum, & Academic Advising Advisory Group

Through joint faculty appointments and interdisciplinary research agendas, UMSI has the opportunity to interact with a variety of units on campus. (See Table III.14 for a full list of

joint appointments and Table III.15 for a full list of faculty from other units with courtesy appointments within UMSI.) This cross-cooperation has led to campus-wide exposure of the work that is being done in the School. Because we are a coequal school in the U-M's governance structure, we are able to enter into interdisciplinary cooperative programs with other units. Examples include our participation (and in most cases, leadership) in the:

- *Peace Corps Fellowship Programs*. Along with many other units on campus, we collaborate to offer students access to programs, such as the Masters International Program (ending this year) and the Paul D. Coverdell Fellows Program.
- *Interdisciplinary Consortium of Organizational Studies Program*. Through this program, MSI students and UMSI doctoral students enroll in the *Seminar in Organizational Studies* (702) that features internationally recognized scholars speaking on topics of technology and organizations.
- *Science, Technology, and Society* (STS) *Program*. UMSI offers a shared course, *Knowledge/Power/Practice in Science, Technology, and Medicine* (719), in which both MSI students and UMSI doctoral students regularly enroll.
- *Open Data Integrative Graduate Education and Research Traineeship* (IGERT) *Program*. Funded by the National Science Foundation (NSF) with the College of Engineering, IGERT has enabled UMSI and Engineering to support a new graduate training program in open data sharing and data reuse in e-science, provide doctoral-level fellowships, and develop a new course in data curation.
- *Michigan Institute for Data Science* (MIDAS). Eight UMSI faculty are affiliates of this new center, enabling them to interact with faculty from other U-M units and bring new techniques and information into our MSI classrooms.

V.2c Decisions regarding funding and resource allocation for the School are made on the same basis as for comparable academic units within the institution.

As described in standard V.1c, the School has significant autonomy in allocating resources. U-M's annual budget planning cycle typically begins in October for the next fiscal year (planning for the fiscal year beginning July 1, 2017 (FY18) begins in October 2016). Each academic unit receives a budget workbook and instructions from the U-M's Office of Budget and Planning (OBP) in early October with guidelines for budget development. At UMSI, the chief administrative officer (CAO) and director of budget and finance (DBF) lead the budget development process in collaboration with the LT. The DBF and CAO meet with directors of UMSI's staff groups (see standard V.5a for a description of the staff groups) to develop a budget for each functional area based on the planning goals of the unit and strategic priorities set for the school. The DBF combines these budgets to create the proposed budget from UMSI. The DBF and CAO present the draft budget to the dean and LT for review and consideration of strategic investments. After the dean approves the budget, the DBF submits the proposed budget to the OBP in early February. In March, the OBP and Provost's Office review the budget and meet with the dean, ADAA, ADRFA, CAO, and DBF to review the proposed budget. Following the review meeting, the OBP incorporates the unit budgets into U-M's budget proposal. The U-M Board of Regents reviews and approves the budget proposal in May. Following regental approval, each unit

receives a letter from the Provost's Office with its final budget allocation. Appendix V.1 shows the current FY budget and five-year forecast.

In addition to the yearly budget allocation, access to additional funding through special programs is made available to all schools and colleges on an equal basis. Based on its strategic planning, UMSI has requested additional funds for priority areas. Recently UMSI requested and received additional funds to upgrade and standardize classroom technology. The engaged learning program GIEP also received funding through this mechanism.

V.3 The administrative head of the program has title, salary, status, and authority comparable to heads of similar units in the parent institution. In addition to academic qualifications comparable to those required of the faculty, the administrative head has leadership skills, administrative ability, experience, and understanding of developments in the field and in the academic environment needed to fulfill the responsibilities of the position.

V.3a The administrative head of the program has title, salary, status, and authority comparable to heads of similar units in the parent institution.

The administrative head of each school and college within the U-M is titled "dean." Compensation of UMSI's dean is comparable with similar units. The dean's authority is defined by Regent Bylaw 11.29 (http://www.regents.umich.edu/bylaws/bylaws11a.html#29), "The executive functions of the School of Information shall be performed by a dean." Throughout its history, the School has been the beneficiary of strong and innovative leadership from its deans.

The average salary for deans on U-M's Ann Arbor campus is $384,040. Table V.2 shows the current salary of deans not including those with interim appointments. The UMSI dean's salary is comparable with that of his peers.

Table V.2. Salaries of Deans at the University of Michigan as of June 2016

School/College	Annual Salary
Ross School of Business	$575,000
College of Literature, Science, and the Arts	$462,375
School of Public Health	$452,828
College of Engineering	$450,000
Law School	$447,168
School of Dentistry	$422,912
School of Nursing	$399,158
School of Music, Theatre & Dance	$325,000
Rackham Graduate School	$325,000
School of Information	$315,000
School of Kinesiology	$315,000
College of Pharmacy	$310,305
Ford School of Public Policy	$307,991
Stamps School of Art & Design	$268,828

V.3b

In addition to academic qualifications comparable to those required of the faculty, the administrative head has leadership skills, administrative ability, experience, and understanding of developments in the field and in the academic environment needed to fulfill the responsibilities of the position.

In the previous accreditation report, one of the issues identified was the recruitment of a new dean to replace Martha Pollack, who left to become U-M Vice Provost for Academic and Budgetary Affairs. (Pollack has since left the U-M and now serves as president of Cornell University). The transition to Dean Jeffrey MacKie-Mason went smoothly and he remained dean for five years. Dean MacKie-Mason left UMSI to become University Librarian and Chief Digital Scholarship Officer at the University of California, Berkeley. As a result, in the 2015-2016 academic year, we participated in a national search for a new dean. That led to the appointment of Thomas A. Finholt. Prior to assuming the role of Dean at UMSI on May 1, 2016, Finholt was a Professor and Senior Associate Dean in the School, and played many critical roles in its academic leadership. He joined U-M in 1991 as an assistant professor in the Department of Psychology. From 1997 to 2009, his appointments from assistant research scientist to research professor resided in UMSI. In 2009, he was appointed as professor, with tenure, in UMSI.

Dean Finholt was a co-founder and then director of the Collaboratory for Research on Electronic Work (CREW). Starting in the mid-1990s and continuing for 20 years, CREW pioneered the study of human-computer interaction in organizational settings, including research on many applications that are now commonplace, such as videoconferencing and shared document editing.

Dean Finholt's research focuses on the design, deployment, and use of cyberinfrastructure in science and engineering. He was a co-developer of the world`s first operational virtual observatory, the Upper Atmospheric Research Collaboratory, which was a finalist in the science category for the 1998 *Smithsonian/Computerworld* awards. He also helped develop several other key systems for scientific discovery over the Internet, including the Space Physics and Aeronomy Research Collaboratory and the George E. Brown Jr. Network for Earthquake Engineering Simulation. More recently, Dean Finholt has examined the energy signature of maintaining social networks, how ultra-resolution collaboration technology has accelerated research on "next generation civil infrastructure," and how federal data policies create friction that impedes data sharing. Since 1992, he has been the principal investigator on grants totaling more than $8 million, and a co-principal investigator on grants totaling more than $9 million, predominantly from NSF. Dean Finholt has co-authored some 50 refereed articles, chapters, and conference proceedings.

Dean Finholt's previous UMSI roles include associate dean for research and innovation (2006-2010), senior associate dean for faculty (2010-2012), senior associate dean for academic affairs (2012-2015), acting dean (2013), and interim dean (2015-2016). He has also taught foundations courses in UMSI such as *Information in Social Systems* (500) and *Design and Management of Information Systems* (505) as well as the elective course *Evaluation of Systems and Services* (622).

V.4

The School's administrative head nurtures an environment that enhances the pursuit of the mission and program goals and the accomplishment of its program objectives; that environment also encourages faculty and student interaction with other academic units and promotes the socialization of students into the field.

UMSI's current and past deans consistently encourage faculty to critically examine the role of UMSI in providing intellectual leadership and new dimensions for librarianship and other information professions. By having joint faculty appointments with other U-M units, the design of the School facilitates the interaction of faculty and students from diverse educational backgrounds and interests. The School promotes socialization of students into the field through practical engagement activities, internships, and financial support of student professional groups.

Dean Finholt continues a history of academic leadership that has led to a very cooperative relationship with the top U-M administrators and features the continuation of strong financial support for our School and the School's strategic initiatives, such as Citizen Interaction Design (CID), Michigan Makers, the Global Information Engagement Program (GIEP), and the Entrepreneurship Program. As noted in standard I.4.1, these engaged learning programs were developed as a result of the robust planning process and specifically the Strategic Investment Planning Initiative in 2012.

As one of the most interdisciplinary schools on campus, UMSI provides its students with the unique opportunity to work with faculty from a variety of disciplines including, but not limited to, engineering, computer science, information science, economics, public health, business, psychology, political science, public policy, and law. The curriculum requires students to supplement their UMSI studies with cognate courses from units across campus and encourages them to participate in a wide array of educational experiences such as Alternative Spring Break, Ann Arbor Data Dive, UX Design Clinic, Entrepreneurship Program, and more. Specially designed academic plans allow faculty and students to shape the academic experience to prepare students for the emerging professions in the next generation of information professionals. In addition, UMSI offers students a diverse set of engaged learning opportunities to apply their knowledge and skills in real-world situations.

UMSI gives financial support to student professional groups that are registered with the Office of Student Life. All sponsored student organizations formally associated with UMSI receive funds annually to support their activities. The largest group is SIMA, which receives additional funding to support special programs. In addition to these funds, student professional groups have access to UMSI copiers, fax machines, telephones, storage space for their records, and meeting rooms.

V.5

The program's administrative and other staff support the administrative head and faculty in the performance of their responsibilities. The staff contributes to the fulfillment of the program's mission, goals, and objectives. Within its institutional framework decision-making processes are determined mutually by the administrative head and the faculty, who regularly evaluate these processes and use the results.

V.5a The program's administrative and other staff support the administrative head and faculty in the performance of their responsibilities.

Many functions that are handled centrally at other universities are handled directly by the schools and colleges at Michigan. Thus, UMSI invests significantly in its support staff infrastructure with the clear goal of establishing a School with human resources adequate to achieve its important mission. Staff may be supported on either general funds (instructional budget), on sponsored funds, or on expendable restricted gift funds. Following is an alphabetized list of UMSI functional support areas along with a description of the types of support each UMSI area provides to faculty, students, administration, and staff.

The staffing groups are defined as:

- *Administration and Human Resources* (AHR). AHR provides human resource management, business management, events management, facilities management, and secretarial/clerical support for both administrators and faculty.
- *Career Development Office* (CDO). CDO provides students and alumni comprehensive career services and resources that are tailored to their specific career interests and goals, and assists private- and public-sector organizations from across the U.S. and abroad with finding new talent from amongst UMSI students.
- *Computing*. Responsibilities are the management of the extensive networked computing environment, Windows support and networking, Macintosh support and networking, UNIX file server support, e-mail and web-systems support, research and teaching support, Novell file server support, and security and administrative support.
- *Development & Alumni Relations* (DAR). This area is involved in fundraising and alumni activities that benefit the School.
- *Finance*. Responsibilities are budget development, accounting, management and project reporting, internal audit and controls monitoring, procurement, and compliance.
- *Marketing & Communications*. This area houses brand management, communications and creative teams that develop and execute marketing strategies across an array of media—including print, web, email, social media, mobile, advertising, public relations, and direct marketing channels—that reach the School's primary external audiences (i.e., prospective students, alumni, donors, prospective donors, corporate partners, and the media) and internal audiences (faculty, staff, students, and the wider University community).
- *Office of Research* (OR). OR staff support faculty in their search for research funding, facilitate the implementation of funded research project; create an infrastructure at UMSI that facilitates research activities; interact with the U-M's research resources; track emerging opportunities in industry, government, and foundations and bring them to the attention of UMSI faculty; promote UMSI's sponsored activities; and manage relationships with partners in research and innovation of the School.
- *Office of Student Affairs* (OSA). This office is responsible for the admissions of masters- and doctoral-level students, course scheduling, curriculum support, student

advising, student support through graduation, financial aid, career development and assistance, and student recruiting.

See the staff organization chart in appendix V.2.

V.5b The staff contributes to the fulfillment of the program's mission, goals, and objectives.

UMSI staff manage and support all areas of the School, providing academic clerical support, event management, financial services, research support, alumni and donor relations, student and career development, personnel services, information technology, and outreach activities. Staff also support UMSI's infrastructure by staffing faculty and administrative committees, coordinating activities and events, maintaining financial reporting systems, and supporting student needs.

As UMSI has grown, staff have been added to support the expansion of the faculty ranks and the broadening of the scope of the School's mission. The investment in staff functions and size is determined by UMSI's mission and program goals and objectives. Recall our three key program characteristics, chosen by us to guide us strategically in the fulfillment of our mission (see standard I.1.2):

1. *Engaged learning*. Engaged learning is supported by staff in three areas: (i) three full-time staff in CDO who help advise and monitor student activities and foster relationships with sites in our engaged learning programs CID, GIEP, and Michigan Makers, (ii) two staff in our Entrepreneurship Program to provide project management and administration of our co-curricular entrepreneurial activities such as the UXDC, and (iii) promotion and public awareness of the programs is provided by our Marketing & Communication staff.

2. *Diversity, equity, and inclusion*. Staff have been key and coequal participants in the UMSI Diversity Committee and in the U-M's Diversity, Equity, and Inclusion Strategic Planning Process. Furthermore, all staff include at least one diversity-, equity-, and inclusion-related goal in their annual performance plan. Here are a few examples of staff activities centered on diversity equity, and inclusion:

    - OSA staff plan and implement recruitment activities to ensure diverse student populations in all our programs. They also work to foster an equitable and inclusive environment for all UMSI students.
    - AHR staff have successfully worked to recruit more diverse staff by identifying ways to expand the job applicant pool.
    - Diversity, equity, and inclusion has also been the focus of several all-staff workshops, for example, inviting Ron Jones from Dialogues on Diversity in April 2016 to talk about intercultural and multicultural awareness and former doctoral student Devan Donaldson (now Assistant Professor at Indiana University, Bloomington) in winter 2015 to talk about microaggressions.

3. *MSI curriculum reform*. OSA and CDO staff have been particularly active in the MSI curriculum reform process from assisting in the data analysis to identify problems, to helping to design the principles and broad outlines for the reform, and now in implementation.

The staff performance and evaluation process includes a discussion of UMSI's mission and the role that individual staff play in helping to advance this mission.

V.5c Within its institutional framework decision-making processes are determined mutually by the administrative head and the faculty, who regularly evaluate these processes and use the results.

One of the major changes in UMSI since the previous self-study is its administrative structure. UMSI has a more formalized leadership structure to accommodate the addition of the two new programs (Master of Health Informatics (MHI) and Bachelor of Science in Information (BSI)) and to better support a larger student body overall. These changes included the development of a Leadership Team to set strategic directions and provide high-level management of the school, as well as the development of individual academic program committees to focus on each of the programs and students in those programs.

UMSI's Leadership Team (LT) consists of the dean, the two associate deans, an assistant dean, and the chief administrative officer. Elizabeth Yakel is the Senior Associate Dean for Academic Affairs (ADAA), and Paul Resnick is the Associate Dean for Research and Faculty Affairs (ADRFA). Their duties are divided. Associate Dean Yakel oversees curriculum, policies, and student affairs for the BSI, MSI, and MHI programs and the program directors for these programs report to her. She also oversees the promotion and tenure process, faculty mentoring, faculty teaching and committee assignments, and faculty search and hiring. Associate Dean Resnick directs the Office of Research, oversees the Doctoral Program, and manages UMSI space on central campus. Assistant Dean of Academic and Student Affairs (ADASA) Judy Lawson reports to the ADAA and oversees the OSA. UMSI created the chief administrative officer (CAO) position in 2012 to provide support across all staff functions. The CAO serves as an LT member and reports directly to the dean. The LT is responsible for the high level administration of the School, strategic planning, and decision-making. It meets regularly (one to two times a week) to advise the dean and advise and inform each other of major School-wide activities and issues. The LT serves all programs in the entire School.

Faculty Structure and Organization for Decision-Making

On the faculty side, there are various groups who assist in advising the dean and/or carrying out strategic plans and the core mission-related activities of the School. The dean is assisted in strategic planning and operational decisions by the DAC, which serves as the School's executive committee. The DAC consists of the dean (ex officio), both associate deans (ex officio), and four governing faculty members elected by their peers. One elected faculty member must be untenured. The DAC advises the dean and represents the faculty on all aspects of UMSI, including but not limited to educational and research policy, strategic hiring initiatives and decisions, promotion and tenure, strategic planning, and budgetary matters. Elected DAC members solicit feedback and identify issues from other faculty. The DAC coordinates a yearly evaluation of the dean. (See appendix V.3 for a list and descriptions of the major leadership bodies within UMSI.)

The Academic Program Council (APC) consists of the academic program directors for UMSI's four programs (BSI, MSI, MHI, PhD) and the ADAA who chairs the group. The APC is a communicating and coordinating mechanism across UMSI's four academic programs (BSI, MSI, MHI, and PhD). In addition, the APC provides strategic direction of the academic programs and serves in an advisory role to the dean and the ADAA in terms

of balancing resources across the academic programs. They meet several times per term. The ADAA drafts yearly charges for each committee in consultation with its program director. The charge is a set of goals and objectives flowing from the strategic planning process. The ADAA meets individually on a monthly basis with each of the four program directors. In these meetings, they evaluate progress toward the goals and discuss other issues arising. Program committees, such as the MSI Program Committee, meet regularly. Due to the MSI program reform, they have met weekly for the past two years and address the Program's curriculum and policy issues.

UMSI's governing faculty (all tenured, tenure-track, and research professorial faculty) vote on all major curriculum and academic program changes in the School. Governing faculty have the final say on major curricular changes. Governing faculty also vote on hiring new full-time faculty on the tenure, research, clinical, and lecturer tracks. These votes are advisory to the dean.

The P&T Committee conducts all third-year, tenure, and promotion reviews and advises the dean on retention (at the third-year review for untenured faculty), tenure, and promotion decisions. The P&T Committee is a subset of the governing faculty. It consists of all tenured associate and full professors and research professors at the associate level or above, and it is chaired by the ADAA.

Staff Structure and Organization for Decision-Making

Staff play a leadership role in implementing the strategic direction of the School. The Management Team (MT) and the Dean's Cabinet are the two key leadership and coordinating bodies for staff. MT consists of the directors of each of the nine major staff units (Human Resources, Finance, Research, Student Affairs, Career Development, Computing, Development, Entrepreneurship, and Marketing & Communications), ADASA, and the CAO who chairs the MT. MT meets regularly to coordinate administrative issues such as strategic planning and goal setting, discussing policies impacting staff and faculty, and developing administrative policy recommendations for the dean. The Dean's Cabinet consists of the LT and MT, and it advises the dean and represents staff on all aspects of UMSI, including but not limited to strategic planning and evaluation, administrative policies and procedures, performance management, hiring, and budgetary matters.

External Advisory Groups to UMSI

Two affiliated groups provide advice to the dean and input to the School: (1) External Advisory Board (EAB) and (2) Alumni Society Board. The EAB is a distinguished group of nationally recognized information-related experts from business, education, and governmental sectors. Some members are alumni or employers of our graduates. The EAB meets each spring in Ann Arbor and each fall via teleconference to offer counsel about matters related to a wide range of topics, including research initiatives and curriculum development. Topics are set months in advance, and the group is provided with briefing papers to assist UMSI in thinking through the issues.

The Alumni Society Board stimulates a continued interest in the School by encouraging fellowship among faculty, alumni and students; works with UMSI to attract outstanding students; keeps other alumni up to date on UMSI's progress; and helps UMSI meet its needs for financial support from public and private sources. Individual members also serve as a sounding board on issues pertaining to UMSI. Since the MSI Program was for

many years UMSI's major academic program, the Alumni Society Board is dominated by MSI graduates.

V.6

The parent institution provides continuing financial support for development, maintenance, and enhancement of library and information studies education in accordance with the general principles set forth in these standards. The level of support provides a reasonable expectation of financial viability and is related to the number of faculty, administrative and support staff, instructional resources, and facilities needed to carry out the program's teaching, research, and service.

V.6a

The parent institution provides continuing financial support for development, maintenance, and enhancement of library and information studies education in accordance with the general principles set forth in these standards.

Standard V.1c asserts that "The parent institution provides the resources and administrative support needed for the attainment of program objectives." Indeed, this is one of the hallmarks of U-M's governance: resources are decentralized, so that tuition from UMSI students, funds from sponsored research, gifts, and income on endowment are credited directly to UMSI's budget. Thus, if we are successful in meeting our goals for all of our programs (including the MSI), we will receive sufficient continuing financial support. We report actual revenue and expense for FY13-FY15 alongside our general and operating forecasts through FY20 in appendix V.1.

As noted in standard III on faculty, all faculty potentially teach in the MSI program. Our recent faculty expansion program was designed to ensure that the MSI Program was not disadvantaged as we grew the BSI and MHI programs. UMSI has likewise made changes in the staffing model to ensure that all programs, including the MSI, receive sufficient attention. Thus, it is hard to break down the staff allocation to the MSI Program. In the Office of Student Affairs (OSA), two staff are solely devoted to MSI advising; the registrar's office (two staff members) spends time working on MSI course scheduling, overrides, and degree audits; all OSA staff participate in MSI recruiting events; the OSA director and associate director spend time on MSI student issues and policy. Likewise, the six staff members in the Career Development Office (CDO) spend a majority of their time on MSI career development activities (programs, resume checking, employer visits, etc.) since it remains our largest program. UMSI does not formally allocate staff time to programs, but we do monitor that programs are achieving their goals and that their outcomes are good as a means of ensuring that staff allocation is appropriate.

The U-M also supports our educational program through substantial collections and personnel expenditures for the U-M Library as well as employing many of our students and graduates. The U-M Library had an operating budget of more than $59,000,000 in fiscal year 2016. It is composed of 19 libraries and numerous service units.

In addition, the U-M Library features one of the best print and digital collections in the world; offers students the chance to participate in innovative activities, such as the HathiTrust, Text Creation Partnership, and Library Data Grants Program; and provides a role model and leadership in developing the academic library of the future. The UMSI and U-M Library deans meet regularly to discuss issues of mutual interest. In addition, we collaborate with the U-M Library in many different ways such as:

- Collaboration to sponsor an internationally recognized speaker for Martin Luther King Jr. Day.
- Joint administration of the U-M Library Associates program (ending in 2016 and taking the new form of the Professional Practice Fellowship Program (see standards II.3b and IV.4a)) offering MSI students tuition remission and a job in the Library during their studies.
- Weekly office hours during the fall and winter semesters offered by the information studies librarian (ISL) to UMSI students and faculty.
- Several librarians in the U-M Library are adjuncts in the MSI Program.

V.6b The level of support provides a reasonable expectation of financial viability and is related to the number of faculty, administrative and support staff, instructional resources, and facilities needed to carry out the program's teaching, research, and service.

UMSI has built a substantial general fund reserve over several years to support the addition of its undergraduate program as well as a number of strategic initiatives to support engaged learning in all four of our programs. As part of the strategic investment planning process (see standard I.4.1), UMSI has spent down some of those reserves to expand our faculty lines and implement engaged learning; therefore, we have had several fiscal years with intentional budget deficits. Our five-year forecast shows the School returning to a balanced budget during the next few FYs as we achieve our student enrollment objectives. UMSI also maintains a sizable general fund reserve for future construction/renovation needed to meet expanding facility needs.

Because the U-M decentralizes revenues to schools and colleges and because the UMSI dean has the authority to determine the number of faculty and staff positions, we can maintain a balance between the size of our programs and the resources needed to carry them out. The LT prepares continual rolling projections for five-year-forward financial planning, based on conservative assumptions to account for unanticipated economic problems, and projects financial viability to continue the School at its current size.

V.7 Compensation for the program's faculty and other staff is equitably established according to their education, experience, responsibilities, and accomplishments and is sufficient to attract, support, and retain personnel needed to attain program goals and objectives.

The salaries of UMSI faculty and staff compare favorably with salaries campus-wide and with salaries for faculty doing similar research at peer universities. It is the responsibility of each dean to assure that equitable salary relationships are maintained within the unit. The dean and CAO consider market factors when making offers to faculty and staff, respectively. Because UMSI faculty come from many different disciplines, maintaining equitable relationships within their ranks is challenging. Each review takes into consideration level of education, years of direct or related experience, years at rank, special circumstances, and professional accomplishments. The UMSI dean has explicitly addressed several faculty equity issues and is committed to establishing and maintaining equity within UMSI, consistent with the School's mission, program goals, and objectives.

In 2005, the U-M moved to a market-referenced classification system for establishing equitable salary for non-academic staff, and UMSI continues to consider such distinguishing factors as performance, level of education, and length of service. UMSI administrative staff assist the dean in this responsibility by performing equity studies for all new staff hires, reviewing equity cases and promotions. Through controlled access to personnel data and data access tools, these staff have the capability to perform such reviews. Special care is exercised to assure that salary differences are independent of race and gender. UMSI regularly benchmarks staff salaries both internally and against the external market to ensure equity.

V.8 Institutional funds for research projects, professional development, travel, and leaves with pay are available on the same basis as in comparable units of the institution. Student financial aid from the parent institution is available on the same basis as in comparable units of the institution.

V.8a Institutional funds for research projects, professional development, travel, and leaves with pay are available on the same basis as in comparable units of the institution.

The U-M's policy regarding leaves of absence, including sabbatical leaves with pay, is specified in section 201.30 of its Standard Practice Guide (http://spg.umich.edu). This policy applies equally to all faculty at the U-M. Each school or college is required to cover the costs associated with approved leaves with pay.

Each school and college establishes its own policy regarding school-funded travel and professional development. UMSI compares favorably with other schools in the expenditure of professional development and travel funds. (See appendix V.4 for a table comparing total travel during fiscal 2016 among units of the University.)

UMSI faculty also compete on an equitable basis with other faculty for institutional research funds. The U-M Office of Research (UMOR) has standard, University-wide policies for providing cost-sharing on external sponsored research proposals, and that cost-sharing is available to our faculty. We routinely obtain funds from UMOR, the provost, and Rackham Graduate School to support special research activities, faculty-graduate student research partnerships, and other research projects. Examples are:

- *Rackham Graduate School Faculty-Student Spring-Summer Research Grant*. Assistant Professor Erin Krupka for "Social Norms and Incomplete Contracts."
- *UMOR*. Associate Professors Soo Young Rieh and Kevyn Collins-Thompson for "Guided Interaction for Searching as Learning (GISELE): A Pilot Study."
- *UMOR*. Associate Professor Tiffany Veinot and Assistant Professor Daniel Romero for "A "Big Data Approach to Understanding Neighborhood Effects in Chronic Illness Disparities."
- *UMOR*. Clinical Associate Professor David Wallace for "The Social Justice Impact of Archives: Elaborating and Assessing Impact."
- *Rackham Graduate School Faculty-Student Spring-Summer Research Grant*. Professor Elizabeth Yakel for "The Changing Landscape of Digital Access: Public-Private Partnerships and Cultural Heritage Institutions."

V.8b Student financial aid from the parent institution is available on the same basis as in comparable units of the institution.

All U-M students are encouraged to apply for need-based aid programs administered by the U-M's Office of Financial Aid. Other sources of aid on campus include the U-M's International Center, Office of Research and Sponsored Programs, Services for Students with Disabilities, and through employment. Students from UMSI have the same access to these resources as do all other students on campus.

UMSI administers merit and target-of-opportunity aid programs directly. These programs are funded by financial aid funds appropriated directly to the School and with funds from gifts to the School. During FY 2016, these programs awarded $2,841,000 in scholarships and fellowships to UMSI students. On average, 25% of MSI students receive scholarships each year. The School also maintains a separate budget for target of opportunity awards to attract students consistent with our mission to increase diversity broadly defined. All MSI students can compete for most scholarship assistance. General scholarships are largely merit-based. This includes an evaluation of the strength of the statement of purpose and personal statement; letters of recommendation; internship/research/work experience; academic record including GRE; demonstration of leadership and service; and indicators of qualities such as creative problem solving and comfort with ambiguous situations. Several of the scholarships target students interested specifically in libraries and archives. Examples are the Bonk Assistantship that combines education and work experience at the William L. Clements Library and provides students with a full-tuition scholarship, and the Professional Practice Fellows Program, which provides work experience and a full-tuition scholarship as well as an extracurricular program of workshops on professional practice and leadership skills. There are opportunities for students to work in libraries within this program. Additionally, because funded research has become a significant financial and intellectual component of the School, opportunities for graduate student research assistant (GSRA) and graduate student instructor (GSI) positions have increased dramatically. These positions offer students stipends, tuition, and healthcare. During FY 2016, GSRA and GSI assistantships for UMSI master's and doctoral student support totaled more than $3,250,000. As UMSI has grown to four programs, the number of MSI students holding GSI positions has also grown. These positions are open to all MSI students, and students are selected based on their academic match for the course, previous instructional experience, and skills required in the course. Included in this total are those master's students selected for the U-M Library Associates Program. These three forms of assistance represent significant financial support to our students. Standards IV.1a and IV.3d also address UMSI's financial aid processes and support to students.

V.9 The School has access to physical and technological resources that allow it to accomplish its objectives in the areas of teaching, research, and service. The program provides support services for teaching and learning regardless of instructional delivery modality.

V.9a The School has access to physical and technological resources that allow it to accomplish its objectives in the areas of teaching, research, and service.

UMSI currently operates from three locations and physical spaces:

1. *North Quadrangle Academic and Residential Complex* (North Quad). North Quad provides 38,000 sq. ft. of office, classroom, laboratory, conference, and student lounge space and accounts for about 83% of our facility footprint.
2. *UMSI Maynard* (Maynard). Maynard provides 3,916 sq. ft. of open-style office and conference room space.
3. *UMSI Engagement Center* (EC). EC offers an additional 4,301 sq. ft. of mixed office and open space.

North Quad houses the Dean's Office, all faculty offices, doctoral student office space, and about 70% of staff. In addition, North Quad provides modern classroom facilities, collaborative space for faculty and students, conference rooms, laboratory space, rooms for student project work, the MSI student lounge, and quiet study areas. UMSI is currently working with the College of Literature, Science, and the Arts (LSA) on a collaborative project to update and standardize classroom technology at North Quad. This project resulted from data collection, specifically an inventory of classroom technology that revealed we were not replacing it regularly and therefore were not providing the best instructional environment. The partnership with LSA allows UMSI to better serve the instructional needs of faculty and students and has put us on a standardized schedule for upgrading the classroom technology. UMSI also continues to upgrade conference room equipment in North Quad to ensure the availability of uncompressed high-definition videoconferencing with researchers, students, and professionals at other locations.

UMSI occupied the Maynard location during fall 2013. Maynard provides individual private workstations using Steelcase panel systems as well as three conference rooms for team meetings. Like all UMSI locations, Maynard is equipped with video and teleconferencing equipment, an employee break area, and a business work center for printing, copying, supply storage, etc.

The organization of our physical plant aligns with the School-wide goal and the MSI mission. The goal for the MSI Program is to "Increase program quality" (see appendix I.6). We have done this by recruiting better students, reforming the MSI curriculum, and making staffing and facilities changes. The EC opened in fall 2014 in response to a growing need for faculty offices in North Quad as well as an identified need to provide a unique space for career development programs and advising and engaged learning. UMSI's CDO and Entrepreneurship Program share this space where they present programs (e.g., resume writing, job interview skills), run the UX Design Clinic, host employer visits, and provide study and group meeting space for our students. Besides mixed-office spaces, EC features an open collaborative space in a location convenient to both North Quad and the central part of U-M main campus.

While UMSI's geographic dispersion presents some challenges to efficiency, the proximity of our three locations (Maynard and EC are within a 5-minute walk from NQ and each other) gives the School's leadership the opportunity to be present in all locations on a regular basis. UMSI also remains in U-M's top ("Highest Priority") category for new campus space.

V.9b The School provides support services for teaching and learning regardless of instructional delivery modality.

UMSI provides administrative and technical support for all courses in the curriculum. In addition, the School collaborates with U-M's Information and Technology Services (ITS) and other units to provide instructional support for its faculty and students. Currently, all courses in the MSI curriculum are in-person on the U-M's Ann Arbor campus.

As noted in standard I.4.1, one of Dean Finholt's new goals is to increase access to UMSI programs. Therefore, UMSI faculty and leadership are engaged with the U-M's Office of Academic Innovation to develop several Massive Open Online Courses (MOOCs). This is in the experimental pilot phase, and UMSI is currently developing a set of scenarios and policies about how it relates to residential programs. UMSI believes that MOOCs have promise to shape the future of learning and redefine public residential education at a 21st-century research university by increasing access to higher education and enabling personalized, engaged, and lifelong learning for the U-M community and for learners around the world. One sample offering involves UMSI faculty Christopher Brooks, Kevyn Collins-Thompson, Daniel Romero, and V.G. Vinod Vydiswaran, who collaboratively proposed and deployed the *Applied Data Science with Python MOOC* to enable learners with a basic understanding of programming to effectively manipulate and gain insight into data. The MOOC delves into data science methods, techniques, and skills, specifically focusing on the application of statistical analysis, machine learning, information visualization, text analysis, and social network analysis. At the present time, the MOOC serves as a resource for MSI students with supportive information for in-person classes. The MOOCS are being evaluated in several different ways including evaluating them in our residential courses, but we are also analyzing their trace data to assess how MOOC students use the system and to better understand attrition and pacing issues. These data will be used to modify the MOOC (e.g., expand or contract lessons, change the pace of the instruction, etc.).

UMSI faculty are also involved in influencing the design of residential instructional delivery. UMSI Professor Barry Fishman and doctoral student Caitlin Holman developed GradeCraft, a learning environment to better support students' intrinsic motivation. GradeCraft supports gameful instruction, a new approach to course design that enables students to make meaningful choices about how they will make progress within a course, take on work that constantly challenges them, and feel connected to both their peers and instructional staff. Since its inception, GradeCraft has been used by over 2,000 students across 40 courses on the U-M campus, and its developers awarded a $1.88 million grant from the U-M Transforming Learning for a Third Century Program to make GradeCraft available to all instructors and students on the U-M campus and beyond. A number of UMSI faculty use GradeCraft in their courses. In the MSI Program, Clinical Associate Professor Kristin Fontichiaro uses it in *Makerspaces, Maker Culture, Maker Tools* (SI 636) and Professor Barry Fishman uses it in *Transformative Learning and Teaching with Technology* (SI 549).

V.10 Physical facilities provide a functional learning environment for students and faculty; enhance the opportunities for research, teaching, service, consultation, and communication; and promote efficient and effective administration of the School.

Many activities related to research, teaching, and service now enlist a variety of media. Nearly every class relies heavily on projection from a computer onto one to two large screens in the front of the class (e.g., lecture slides, video demonstrations, and student presentations). Many classes require amplified audio to project from a computer, and/or to project the instructor's voice using a wireless microphone. Instructors most often, but not always, prefer to plug in their personal laptop to project both video and audio, rather than rely on machines permanently installed in the room. Occasionally instructors will make use of other input-output sources, such as a digitizing tablet or a DVD player. Increasingly, we record certain classes and research talks. Occasionally faculty or staff bring other equipment into a room for a demonstration or special use. Almost all classes make use of whiteboards. Some classes regularly make use of other display methods, such as large "Post-it" newsprint that can be attached to classroom walls to display notes. Recently, the School began using "IdeaPaint" on surfaces in collaborative areas to allow faculty, staff, and students the opportunity to capture and share ideas with a broad audience.

For classes that require specialized software, we have developed two strategies. First, we reserve computer laboratories as classrooms. This has worked well for our MSI students taking graphic design and certain programming courses. Second, we have put substantial effort into virtualization or web-based applications for teaching, a strategy that has been especially popular in digital archives, records management, and digital preservation courses. As a result, students have been able to use their own laptops to access applications, such as SharePoint, Archivematica, ArchivesSpace, and BitCurator. For many students, these are the very applications that they will use on a daily basis in their professional careers. Feedback on how well these strategies are working is continuous. Instructors provide feedback to UMSI Computing, the CIO and the ADAA confer, and we hear from students through the end-of-term evaluations. UMSI is actively working to ensure these strategies succeed. Our demands for technology are intense; all of the above activities are supported at each of our locations, in all our classrooms, and in our conference rooms. Every UMSI classroom has a podium with built-in Apple and Windows-based computers, connections for laptops, a VHS/DVD deck, and a projector that can show all of them. As noted in standard V.9a, due to our data collection efforts, we have become more diligent about ensuring that the classroom technological environment is current. This makes it possible for students, faculty, staff, and visitors to effectively teach and demonstrate the Internet and online resources to large groups. In addition, several UMSI meeting rooms have high-end high-definition IP-based videoconferencing capabilities. UMSI has integrated these systems and software for videoconferencing into these conference rooms and many offices, which facilitates meetings and group work between the School's three locations and with remote sites. These facilities are used routinely by both faculty and staff. UMSI also has portable IP-based videoconferencing units that can be used in any classroom or meeting room. In addition to instruction, faculty and students use these facilities (especially conference rooms) for their research activities, such as conducting collaboration meetings via videoconference or conducting design jams or brainstorming sessions via electronic workspaces projected on a screen. In addition, various research projects with specialized needs have their own facilities, such as the Behavioral Economics and Cognition Laboratory.

UMSI reviews physical facilities regularly to ensure compliance with ADA standards so faculty, staff, and students with disabilities have equal access. When building the UMSI Engagement Center, we specifically designed the facility to ensure ADA compliance.

V.11 Instructional and research facilities and services for meeting the needs of students and faculty include access to information resources and services, computer and other information technologies, accommodations for independent study, and media production facilities.

UMSI students have unparalleled access to library and multimedia resources and services. As one of the top academic research libraries in the world, the U-M Library possesses extraordinary resources including collections that number more than 13 million volumes at 19 libraries across the U-M campus. Each year, the U-M Library adds nearly 130,000 volumes to its collections, representing almost 2.5 miles of new material. More than 4 million students, faculty, staff, and visitors visited the Library last year.

The U-M Library includes the graduate and undergraduate libraries, and divisional libraries operated as branches of the U-M Library, which include the Taubman Medical Library, Engineering Library, Natural Science Library, Chemistry Library and many other collections. The U-M Library consistently ranks in the top 10 in size among U.S. research libraries.

The Harlan Hatcher Graduate Library (HHGL) is the U-M's primary research collection for the humanities and social sciences. It has extensive holdings in literature, history, political science, and economics, among many other subjects. Its collection numbers approximately 3.5 million volumes. Current selection is focused on the associated disciplines of the humanities and social sciences, but historical collections support scholarship campus-wide. Commonly cited HHGL collecting strengths are English and French local history; papyrology; history and culture of Germany; classical archaeology; military history; English literature; social and political movements; and area studies encompassing South Asia, Southeast Asia, the Near East, and Slavic countries. In addition, these general stacks collections are supported by strong holdings in government publications from the U.S. and other nations, an outstanding collection of maps and related materials, a comprehensive collection of publications written in the language groups of East Asia, manuscripts and special collections, over 1.5 million items in microformats, and a strong collection of reference and bibliographic sources in print and machine-readable formats.

Many of the U-M Library's collections are world-renowned because of their breadth and depth, including collections on topics such as engineering, mathematics, dentistry, science, French, German, Near East, Slavic, Asia, South Asia, Southeast Asia, Central Eurasia, and many more. The U-M Library also has significant collections that are outstanding and rare, many of which have been given as gifts throughout the Library's history.

The U-M's premier digital library facilities and programs create and make available text, images, and other online collections to scholars and learners around the globe. These resources both complement and extend the traditional materials of the Library. The U-M Library is also a leader in creating and converting traditional library materials to digital format and making them accessible electronically. For example, the U-M Library was amongst the first and largest sites for complete collection capture by the Google Books project. The U-M's digital collection is now part of the HathiTrust Digital Library (https://

www.hathitrust.org/), created by 14 leading universities to establish, support, and make accessible in digital form the largest scholarly library in the world. A majority of the U-M Library's collection has been scanned and processed, including essentially all of the books in the largest library (HHGL), several specialty collections (such as the Taubman Medical Library), and large portions of the Buhr Remote Shelving Facility. The U-M Library's digital collection is constantly evolving to suit new and existing demands from library users and library services.

UMSI students, faculty, and staff have access to a vast number of electronic and print resources. The online library catalog (Mirlyn) includes holdings of independent facilities, such as the Bentley Historical Library, William L. Clements Library (manuscript collections focusing on American history and culture), and the University of Michigan-Flint's Thompson Library. Mirlyn includes books digitized through the Michigan Digitization Project and the HathiTrust Digital Library, as well as digitized journals and newspapers. The U-M Library's SearchTools interface is a gateway-and-selection tool to more than 1,000 online databases—not only encyclopedic, databases such as JStor, LexisNexis Academic, ProQuest Research Library, Scopus, Web of Science, and WorldCat, but specialized databases such as Black Thought and Culture, British Online Archives, Islamic Medical & Scientific and Ethics, Shoah Foundation's Visual History Archive, Tibetan Buddhist Resource Center Digital Library, and *Women's Wear Daily* Archive. When searching in most databases, users need only click on a retrieved source's accompanying MGet It button to connect to digitized full-texts. U-M Library users enlist both SearchTools and Mirlyn to connect to the Library's almost 164,000 periodicals in both digitized and print formats.

ArticlesPlus and DeepBlue are the U-M Library's discovery services and institutional repository, respectively. The U-M Library's Ask-a-Librarian service connects users with reference service via phone, chat, and email. Subject specialists are available by appointment, able to give scholarly advice to members of the U-M's learning community across the wide range of subjects, disciplines, and fields of study that represent the U-M's schools, colleges, and research centers. Librarians are also available on demand to conduct workshops on a wide range of topics such as academic integrity, citation managers, discipline-specific discovery tools and resources, intellectual property, and specialized bibliographic technologies. At http://www.lib.umich.edu/services is a menu listing the U-M Library's services, and statistical highlights of both U-M Library and campus library services are available at http://www.lib.umich.edu/statistical-highlights.

A unique campus library is the James and Anne Duderstadt Center. Opening in 1996 on the U-M's North Campus, the Duderstadt Center provides faculty and students with tools and collaborative spaces and houses the Art, Architecture, and Engineering Library, the College of Engineering Computer Aided Engineering Network (CAEN), and the Digital Media Commons. With over 400 computers available 24/7 to library users, the Duderstadt Center is the largest U-M public computing site, offering students and faculty access to 3D and virtual-reality labs, a large video production studio, a state-of-the-art audio recording studio, two electronic music studios, videoconferencing, and unique collaboration rooms. The Center's visual resources collection is called Imageworks and offers special resources to support the Stamps School of Art and Design, and the Taubman College of Architecture and Urban Planning.

UMSI has relationships with specialized libraries and archives on the U-M campus and benefits enormously from the specialized information professionals that staff these

instructional and research facilities and the opportunities they offer to our students for professional experience and independent study. Brief synopses of these units follow:

- *Bentley Historical Library.* Founded in 1935 to serve as the principal historical collection (in all media) for the State of Michigan, the Bentley serves as the University's archives. It is also a center for innovation in teaching, focusing on primary sources and digital curation in an effort to transform its services to accommodate "born digital" archives. Over the years, the School's deans, faculty, and adjuncts have come from the Bentley, and thus, this venerable institution has always welcomed UMSI students, serving as a living laboratory, practical engagement site, and source of professional employment.

- *William L. Clements Library.* The Clements first opened in 1923 and houses one of the premier rare book and manuscript collections in the midwest documenting the American Revolution and the period of exploration in the Americas through the U.S. Civil War. The Clements reopened in April 2016 following a $16.8 million renovation project that included the construction of a two-level underground addition to house mechanical systems, and an additional 3,000 square feet for collections. Between the Clements and the HHGL's Rare Book and Special Collections, UMSI students have an extraordinary opportunity to explore issues in the evolution of print culture.

- *Gerald R. Ford Presidential Library.* The Ford Library is a division of the National Archives and Records Administration (NARA) and houses collections that document Ford's long congressional service (1946-1973) and his presidential term (1974-1977). Major topics in the collections are the Nixon Pardon, the Warren Commission, and the Great Society legislation. Students who intern or work at the Ford part-time are provided with a window into the administration of government archives.

- *Inter-University Consortium for Political and Social Research* (ICPSR). ICPSR is one of the premier social science data archives in the U.S. It was started on campus in the early 1960s by a group of behavioral scientists as a sub-unit of the Institute for Social Research (ISR). ICPSR has long been at the forefront of data and digital archiving, developing practices and protocols that have led to standards and best practices. Numerous UMSI students have held student jobs or done internships at ICPSR. Furthermore, ICPSR faculty have collaborated with UMSI faculty, such as Margaret Hedstrom, Carl Lagoze, and Elizabeth Yakel on different research and student-centered grants. For example, ICPSR was a partner with UMSI on the IMLS-sponsored "Engaging communities to foster internships for preservation and digital curation" grant and hosted MSI student interns for several summers.

Computers and Other Information Technologies

The ITS unit of the U-M provides numerous public computing sites. These sites are equipped with hardware and a wide-ranging collection of software packages for creating, organizing, and processing digital information, creating multimedia, and creating new information products. Examples of available software resources are:

- Application development servers for creating custom software and database tools delivered via a web browser

- Bibliographic searching software, file conversion software to adapt to a large number of graphic and other formats

- Communication packages for internal and external use
- Database programs for text and image databases
- Digitizing software linked to image and sound digitizers
- Electronic document management software for work flow and standalone systems
- Image processing software for pixel manipulation or optical character recognition
- Multimedia authoring programs for both PC and Macintosh platforms
- Presentation software including multimedia elements
- Productivity software for word processing, spreadsheets, project management, flat file, and relational databases
- Video and sound editing software

UMSI in collaboration with the U-M's ITS maintains an extensive inventory of computer and peripheral hardware, in addition to that installed in classrooms, which students and faculty can borrow. Much of this hardware is available for checkout to UMSI students, faculty, and staff for off-premises use. Hardware examples are:

- Audio and video editing equipment
- Digital and mini digital video units
- Digital audio recording devices
- Flatbed scanners for documents and color photographs
- Mac and Dell laptops
- Mini-DV camcorders for high-end recording
- Portable digital projectors
- Portable videoconferencing carts
- Slide and negative scanners
- Speaker phones
- Video and sound digitizers
- Wireless microphone sets

Every U-M graduate student is provided with free file storage through the institutional file server accounts. ITS provides free or extremely low-cost seminars and hands-on experience with appropriate software packages. In addition to ITS, the U-M Library, Language Resource Center, Institutional Review Board, and LS&A Instructional Support Services sponsor open workshops for students, staff, and faculty on various technology topics. Examples of workshops are: BlueJeans for videoconferencing, creating professional-looking conference posters, creating websites with Google Sites, data storage and retention, and Scrivener (advanced word processing for research projects). Office and teaching facilities are equipped with connections to the U-M campus broadband video

network. This allows us to view video programming offered by other campus providers and satellite broadcasters, to provide our own video programming to the rest of campus, and to engage in full two-way video conference activities.

Accommodations for Independent Study

Currently, we have several spaces available for use as flexible project spaces. In North Quad are several project rooms that have been set aside primarily for UMSI student use, thus giving students use of these throughout the day and evening hours. Also in North Quad, we permit students to reserve conference rooms and classrooms for projects when not in scheduled use by UMSI faculty and staff. The UMSI Graduate Student Lounge located on the first floor of North Quad also serves as a meeting place for master's students. It is available via Mcard access. More private space is available to students in the North Quad Media Gateway and Space 2435. In UMSI's Engagement Center, students have access to a large open space as well as several "restaurant style" booths for individual study and/or collaboration. All rooms have wireless connectivity as do the rooms on this partial list of on-campus study and project areas available to UMSI students and U-M students generally:

- *Shapiro Library Group Meeting Rooms.* By fall 2016, an updated room reservation system will permit students to schedule one of the 17 meeting rooms available here. Open, individual study spaces are abundant in Shapiro but they fill up quickly as midterms and final exams approach.
- *HHGL Study Rooms*. Students can reserve study carrels weekly and by the semester by contacting HHGL's Circulation Department.
- *Rackham Study/Meeting Rooms*. Rackham was completely refurbished recently and has two large rooms (East Lounge & West Lounge) where graduate students can gather, meet, and study on Monday to Friday from 8 am to midnight. Located in the center of the second floor, Rackham's Reading Room is reserved for traditional, quiet study. No laptops, cell phones, or talking are allowed in this area. A comfortable and scenic space, it overlooks Ingalls Mall and HHGL, its alcoves are furnished with large tables and overstuffed armchairs, and it is a favorite hideaway frequently mentioned by alumni.
- *Duderstadt Center Group Study Rooms*. Perfect for individual, small-group (two people), or medium-group (3 to 8 people) study are 18 study rooms located on the second floor and one group study room located on the lower level of the Duderstadt Center. Seventeen of these study rooms may be reserved in advance and two are available on a walk-in basis.
- *U-M's Several Student Unions*. While not workable for all meetings, groups can meet in the public or semi-private areas in the Michigan Union or the Michigan League on Central Campus or in Pierpont Commons on North Campus. Not only are there quiet study areas, but there are coffee houses and snack bars where students, faculty, and staff can purchase refreshments, then settle into a booth or table to talk.
- *Area Coffee Houses and Restaurants.* North Quad is conveniently located near many coffee houses and restaurants where students, faculty, and staff can get together and meet while enjoying refreshments or relocate somewhere quieter and less distracting. Although the Engagement Center is located above Panera Bread with its tempting

pastries, snacks, and beverages, Espresso Royale half a block west on State Street appears to be the favorite UMSI student hangout.

Media Production Facilities

The University provides numerous media production facilities for student use, principally the Digital Media Commons in the Duderstadt Center, which provides more than 100,000 square feet of fully networked, dynamically re-configurable space and a set of design studios, labs, collaborative spaces, computer conference rooms, and creation stations. This facility is available to UMSI students to provide collaborative work-space and computing facilities. The Digital Media Commons features the UM3D Lab, an interdisciplinary service facility, that provides the U-M learning community access to the tools, expertise, and collaborative opportunities needed to support cutting-edge research, academic initiatives, and innovative uses of technology in the general areas of teaching and learning; visualization and simulation; 3D printing and scanning; motion capture; modeling, animation, and design; and custom tool and application development. Students can learn the technology and methods themselves or consult the lab's staff. The UM3D Lab is open from 9 am to 6 pm on weekdays, and no appointment is needed. Examples of the Lab's spaces and resources are:

- *Design Lab 1.* Animators, videographers, musicians and sound engineers, motion scientists, robotics engineers, programmers, gamers, and designers collaborate in this space, exploring the practical and expressive potential of new tools, technologies, and aesthetic directions at the convergence of digital and physical space.
- *Design Lab 3.* This is a new learning space equipped with modular furniture, whiteboards, sketchpads, and high-end workstations loaded with data visualization and modeling software that attract entrepreneurs, architects, and product designers who use the lab for ideation in connection with the library's data resources, as well as the UM3D Lab's prototyping tools.
- *Electronics Workbench.* Located in a small room near Design Lab 1, the Workbench houses components and hand tools for prototyping electronics projects. Access is granted to anyone who has attended an orientation that is given by UM3D Lab staff.

V.12 The staff and the services provided for the program by libraries, media centers, and information technology units, as well as all other support facilities, are appropriate for the level of use required and specialized to the extent needed. These services are delivered by knowledgeable staff, convenient, accessible to people with disabilities, and are available when needed.

Consistently ranked as one of the top 10 academic research libraries in North America, the U-M Library makes available an extraordinary array of resources and services. The Library has physical locations throughout the U-M campus and offers a wealth of resources in traditional as well as digital formats. The Library's expert staff is committed to helping patrons tap into the full potential of these information resources and to providing a full spectrum of assistance for research and teaching. Librarians help students at every step in their educational career and work closely with faculty and graduate students to support their research needs. They are also available to U-M faculty on demand to provide instruction on a particular resource or course assignment. More typically, UMSI faculty

invite librarians to give guest lectures on their areas of expertise and daily experience such as cataloging special collections materials, copyright, database contract negotiation, identification and selection of international resources, information literacy, and the responsibilities of the research library's chief collection development officer.

The U-M Library recruits and employs a talented staff that includes those with expertise in materials published today or more than 2,000 years ago. Library staff members answer over 80,000 reference questions a year, serve patrons in acquiring the information they need, select new materials in both traditional and digital formats, and teach students individually or in response to faculty requests about finding relevant information. The U-M Library designates one or more subject specialists to support each school or college. UMSI's specialist, Shevon Desai, hosts a meet-and-greet session in early September, briefing students on the U-M Library generally including part-time employment opportunities there and introducing at least a dozen of her U-M Library colleagues who describe their specialized responsibilities in addition to the collection development, reference, and training services that most librarians provide. UMSI's subject specialist also holds open office hours on a weekly basis during the academic year, settling into a North Quad meeting room and meeting students individually and in groups. She and her U-M Library colleagues are also available by appointment. James L. Hilton is currently U-M's Dean of Libraries and Vice Provost for Academic Innovation, and he is an active (non-teaching) member of the UMSI faculty.

The U-M Library, in addition to providing nearly all of its services through always-on network access, is physically convenient and open long hours. The Library encourages members of the U-M's learning community to submit requests for resources that are not available to interlibrary loan. The Library fully complies with ADA accessibility requirements, and is a leader in developing improved access that goes well beyond the legal requirements.

UMSI's direct information technology (IT) needs are provided by this staff of five full-time professionals:

- CIO (chief information officer)
- Windows server and security specialist
- UNIX/Linux, networking, and security specialist
- Web application developer
- Business analyst

IT staff members have various levels of educational background, including one master's graduate of UMSI. Individual members of the team also hold certifications in a variety of specialty subject areas including security. The IT team provides technical support for faculty, staff, and student computing facilities, centralized computing services, Windows active directory file services, and network services, including Web and UNIX login services. It also provides infrastructure support for sponsored research at UMSI.

The U-M's Information Technology Services (ITS) unit provides desktop support services through MiWorkspace. MiWorkspace is a desktop-support service that provides network connectivity to computers and devices, delivery of software and security updates, network storage, printing, and access to a team of desktop-support professionals. ITS standardizes common desktop support work across campus, allowing units to focus on mission-

critical technology. ITS also provides network access from remote locations, printing, the campus-wide networking infrastructure, and manages numerous public computing sites for all U-M students.

V.13

The School's systematic planning and evaluation process includes review of its administrative policies, its fiscal and support policies, and its resource requirements. The program regularly reviews the adequacy of access to physical resources and facilities for the delivery of face-to-face instruction and access to the technologies and support services for the delivery of online education. Within applicable institutional policies, faculty, staff, students, and others are involved in the evaluation process.

V.13a

The School's systematic planning and evaluation process includes review of its administrative policies, its fiscal and support policies, and its resource requirements.

The dean is assisted in his executive functions by the LT, DAC, governing faculty, Dean's Cabinet, and the four program directors (BSI, MSI, MHI, and Doctoral).

Fiscal and administrative policy review and development are the LT's responsibility. Academic policy review and development are the responsibility of the DAC and ADAA. The LT meets weekly to discuss operational issues and address matters arising. In addition, the LT conducts a strategic retreat once each year to review current operations, engage in strategic planning, and set LT priorities for the coming year. The DAC, a body elected by the governing faculty, meets monthly and advises the dean on a number of topics including faculty hiring, procedures regarding promotion and tenure, and curriculum initiatives.

The ADAA and UMSI's director of human resources and support services (HRSS) lead a review of the School's Faculty Handbook (https://sites.google.com/a/umich.edu/umsi-policies/?pli=1) on a yearly basis. They consult with other units (Finance, Computing, OSA, OR) to make sure policies and procedures are updated and the information being presented is correct. Each academic program has a student handbook that is reviewed on a yearly basis. For example, the ADASA and OSA review the *MSI Student Handbook* (see appendix IV.1) on a yearly basis along with related policies, such as student facilities and equipment use and funding for student travel. The CAO reviews general administrative policies on an annual basis including polices related to technology tools, flexible schedules, and office hosting. The DBF and CAO review internal controls annually for certification by the dean.

Advising UMSI's Dean is UMSI's External Advisory Board (EAB). The EAB is a distinguished group of nationally recognized information-related experts from business and education. The board meets each spring in Ann Arbor and each fall via teleconference to offer counsel about matters related to a wide range of topics, including research initiatives and curriculum development. A list of current EAB members can be found at https://www.si.umich.edu/external-advisory-board. Examples of policies and resource requirements that were revisited as a result of EAB business are the creation of UMSI's Entrepreneurship Program, engaged learning opportunities for undergraduate and graduate students, and review of the strategic opportunity provided by digital curation. These discussions were later discussed in the DAC, faculty meetings, or the appropriate academic program committee.

Based on the strategic planning process and in consultation with the academic program directors, the ADAA prepares a charge for the BSI, MSI, and MHI program committees. The ADRFA likewise prepares a charge for the Doctoral Program Committee. In addition to collaborating with staff from OSA and the ADASA on admissions, the program directors and committees review new course proposals, advise on the structure of the degree programs, and provide faculty leadership in the admissions process.

The impetus for policy and resource requirements reviews is not UMSI's only systematic planning and evaluation process. Discussion at monthly faculty meetings, P&T meetings, MSI Program Committee meetings, meetings of various standing committees, the ADAA's yearly charges to various faculty committees, and student input from a variety of sources, such as Ask the Dean forums, surveys, focus groups, and grievances, lead to policy review. We described each of these advisory bodies in appendix V.3.

V.13b The School regularly reviews the adequacy of access to physical resources and facilities for the delivery of face-to-face instruction and access to the technologies and support services for the delivery of online education. Within applicable institutional policies, faculty, staff, students, and others are involved in the evaluation process.

UMSI annually reviews access to physical resources, facilities, technologies, and support services for the delivery of face-to-face and online instruction. Emerging facility needs for faculty, staff, or students are reviewed by the ADR, ADRFA, and CAO. At an annual planning process, they address needs for office space, lab space and common areas along with a review of classroom needs. During the past three years, UMSI has invested in substantial renovations to North Quad to provide additional office and collaborative space for faculty and doctoral students. In FY 17, UMSI plans to invest about $225,000 in classroom renovations that include general maintenance and upkeep as well as modernization and standardization of classroom technology. UMSI also invested in adding interior design elements that communicate the diverse, intellectual pursuits of our faculty and students. Examples include bulletin boards, video displays, and writable wall surfaces.

UMSI works with the Provost's Office staff on a broad array of facility and physical resource issues, regularly engaging faculty, students, and staff in significant facility planning efforts. This engagement may take the form of one-on-one conversations, solicitation of feedback during faculty, staff and student group meetings, or through formal focus groups. UMSI has engaged third-party space planners in the past to help guide our planning efforts and ensure transparency and participation by faculty, staff, and students.

V.14 The School has explicit, documented evidence of its ongoing decision-making processes and the data to substantiate the evaluation of administration, finances, and resources.

Strategic-level decisions are made by the LT with advice from a variety of groups including the Dean's Cabinet, DAC, governing faculty, EAB, and program committees. As an example of the outreach for decision-making, in 2014 the LT engaged an outside interior design consultant to lead an engagement process to identify the facilities needs of faculty, students, and staff. The process included meeting with focus groups to gather feedback. The consultant presented the data and a series of recommendations for improving facility

usage to the LT. UMSI implemented a number of projects as a result of the process including development of the Engagement Center, redesign of office space within North Quad, and creation of more collaborative meeting space adjacent to faculty offices.

The University's M-Pathways system manages data intake for financial, facility, student, and human resource records. These data are available to UMSI leadership, staff, and faculty through the U-M data warehouse. Access to a variety of reporting tools including M-Reports, Business Objects, and Tableau provides the flexibility to view both raw data as well as create a variety of visual reports. School leadership reviews these reports on a regular schedule to ensure UMSI is properly stewarding financial resources.

The annual merit review process for staff provides data for making promotional and merit-based awards to staff. Each staff member, in collaboration with their supervisor, establishes a set of priorities for the year. The process begins in spring with an all-staff meeting where staff receive information from the CAO about the priorities established by the dean and LT for the coming fiscal year. During the course of the meeting, staff work within their functional units to establish both unit and individual priorities for the year that align with the high-level priorities of UMSI. Supervisors follow-up with staff to finalize individual priorities prior to the beginning of the fiscal year. These priorities serve as the base for coaching conversations during the year as well as the annual merit review. In July of each year, staff complete a self-evaluation of their performance toward achieving their priorities along with a review of their professional development plan. Supervisors provide a written evaluation to staff documenting their strengths, opportunities for improvement, and recommended areas to focus professional development. The CAO and UMSI HR Director review the staff evaluations to identify opportunities for process improvement as well as all staff training activities.

During the annual budget cycle, the dean and CAO review the school's fiscal performance in relation to its five-year plan. This review includes developing recommendations to share with the LT about opportunities for strategic investment, need for cost containment, and proposed changes to functional unit budgets.

V.15 The School demonstrates how the results of the evaluation of administration, finances, and resources are systematically used to improve the program and to plan for the future.

Each spring, the dean conducts a state-of-the-School review for faculty and staff. This review incorporates a wide variety of reports on financial position, enrollment trends, research awards and expenditures, and facilities use and needs, and looks forward at priorities for the coming year. The data for this review come from internal and external systems that provide current data to the dean. The state-of-the-School report serves as both a demonstration of performance toward achieving goals as well as a starting point for discussing opportunities to continually improve performance. The report is presented by the dean to all internal and external constituent groups. Data from the report also feed into the strategic planning process. (See standard I.4.1 for details on the planning process.)

Throughout the academic and fiscal year, members of the LT provide updates to faculty, students, and staff on topics of interest. For example, in the fall of 2014, UMSI asked the ADVANCE Program to conduct a climate survey of all faculty, lecturers, staff, PhD students, and master's students. The LT shared the results of the survey with all

groups to foster discussion on areas for improvement. Results from the climate survey informed the development of UMSI's Diversity, Equity, and Inclusion Strategic Plan and action items related to the survey have been incorporated into the charge for the UMSI Diversity Committee for the previous two years. UMSI also used the information to develop several opportunities for faculty/staff to interact outside of work as a means of strengthening relationships between faculty and staff. The implementation of the facility recommendations described in standard V.14 is an additional example of the School using the results of feedback from faculty, staff, and students to improve its resources. The development of the Diversity, Equity, and Inclusion strategic plan also provided an opportunity to analyze existing data and improve program outcomes. UMSI analyzed the admissions procedures for each of the four programs and found that while the holistic admissions criteria for the MSI, MHI, and BSI degrees were being used well, fairly, and equitably, there were problems with the doctoral admissions process. Therefore, UMSI revised its procedures for doctoral admissions this year to provide a more holistic review of all applicants. Finally, OSA and CDO conduct a number of surveys of students and employers. These surveys and how the results are used to improve the student experience are discussed throughout chapter IV.

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STANDARD V APPENDIX

SCHOOL OF INFORMATION
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