HUMAN FACTORS IN INFO DESIGN (HF)

HF 590 Internship in Human Factors in Information Design (1 credit)
A one-credit field-based educational experience for HFID students, with the opportunity to (1) observe human factors and user experience practices, (2) apply knowledge of human factors and user experience research methods (3) develop project management skills, (4) and explore development cultures. This internship option is available to HFID graduate students. Students must work a minimum of 120 hours at an approved organization, complete a reflection paper, and coordinate their performance appraisal with a specified site supervisor. A student is limited to doing one such one-credit internship before degree completion.

HF 700 Foundations in Human Factors (3 credits)
Program Director approval required for all except MSHFID & MSIT & MSMBA. Designing intuitive, self-revealing products requires understanding the human factors that underlie the user’s interaction with the product. This course introduces the applied theories relevant to the design of information products, training programs or user interface designs. Particularly relevant to those working with critical applications, diverse user populations and new technologies, the course helps students to create applications compatible with the strengths and weaknesses of the user’s information processing systems. Students learn to anticipate user requirements before product development, to explain the user’s performance during usability and prototype testing, and to foster a smooth transition for users facing new technologies or information.

HF 701 Directed Study in Human Factors (3 credits)
A Directed Study is designed for highly qualified students who, under the direction of a member of the sponsoring academic department, engage in an agreed-upon in-depth independent examination, investigation or analysis of a specialized topic.

HF 710 Managing a User-Centered Design Team (3 credits)
Program Director approval required for all except MSHFID, MSIT & MSMBA. This course addresses methods and tools that information designers can use to integrate user-centered design approaches and human-factors principles to enhance the usability of information products. Through readings, short papers and team projects, students examine common project-management problems that can adversely affect usability, define the implications of those problems for the interface, and apply selected project-management techniques for anticipating and managing usability issues. Lectures, discussions and assignments focus on various user-centered design methodologies and human-factors techniques, and examine implementing these approaches in the project environment. Course materials and activities focus on processes such as creating user-centered project environments that support a human-factors approach to user-interface design, setting and evaluating project performance standards. Students examine and define metrics (ROI) for evaluating the effectiveness of the usability effort.

HF 715 Innovation Boot Camp (3 credits)
Restricted to MSHFID Online & California Program students. This five-day program offers on-line program students an opportunity to explore and develop the skill component of many of the program’s classes, including user requirements gathering, field methods, prototyping and usability testing. This experience has been created as a complement to the online experience in each of these classes. The program is held primarily in the Design and UsabilityCenter, while select experiences will take students into the field. Immersion in the user-centered design experience during a full-week of interactive discussions, an expert panel presentation, site tours and hands-on workshops is the focus of the week. Over the course of the five days, students will experience the entire user-centered design life cycle. Interaction/networking with program faculty and current students and alumni from the on-campus program is included in the week’s activities. Note: This course is mandatory for students in the MSHFID On-Line Program.

HF 720 Localization and the Global Market (3 credits)
Program Director approval required for all except MSHFID, MSIT & MSMBA. In today’s global marketplace, long-term success requires a strategy for tailoring products to the requirements of the international community. This course introduces participants to the theory and practice of internationalizing all aspects of a technology business, including documentation, training, user interface and marketing. Moving beyond the simple translation of language, the course addresses internationalization from the more comprehensive perspective of cultural theory. The course begins by recognizing the ethnocentric biases that affect all aspects of information design, then proposes a strategy for creating a globalized core design for all aspects of the product line. Working from this globalized core, developers can more easily and economically tailor product design to serve the needs of a local community. The course will focus on the major markets for technology, medical and scientific products, including Japan, China, France, Germany and England.

HF 725 User Experience Leadership and Management (3 credits)
Program director approval required for all students except MSHFID or MSIT or MSMBA. In a business world where change is continuous and innovation essential, leadership and management are critical competencies that every user experience (UX) professional must command. In this course, students will learn how to lead and to manage user-centered strategies, tactics, organizations and teams. Through case studies, visits with Silicon Valley-based UX leaders, lectures, team exercises, short papers and hands-on assignments, students will learn how UX participates at a strategic level, how to communicate the value of UX to executives, as well as how to recognize business challenges that can be turned into UX successes. As part of this course, students will create their own personal strategic plan for use in managing their career as a UX professional and leader.
HF 730 Visualizing Information  (3 credits)
*PREQ: Program Director approval required for all except MSHFID, MSBA, MSIT & MSMBA.*

This course examines the theory and practice of designing dynamic visualizations that clarify thinking, facilitate problem-solving, and foster creativity. This course helps students to harness their visual and creative potential and to display this potential in the visual medium. In practice, students will learn to make large collections of verbal and numerical data accessible through carefully crafted visual displays. The unique strengths and weaknesses of both words and visuals are analyzed. Advancing from this analysis, the course helps students design a visual-verbal system where the strengths of one medium support the weaknesses of the other. This complementary system more fully integrates visual and verbal information, thereby dramatically improving the reader’s understanding and retention of the communication design.

HF 740 Information Architecture: User-Centered Design for the World Wide Web  (3 credits)
*Pre-req: Program Director approval required for all except MSHFID or MSIT or MSMBA.*

This course applies human factor design principles, strategies and best practices in creating various types of websites. The course incorporates the information and knowledge needs of users, clients, product design teams, management and other constituencies involved in creating, implementing, maintaining and using information on the World Wide Web. Topics include the user-centered design process, form and function, technology and usability issues, site types and organization, information categorization and labeling systems, global and local navigation systems, searching and browsing systems, accessibility, interactivity, page layout, template design, prototyping, modularity, scalability, maintenance and management. Students learn to identify for different audiences the value of using information architecture principles and best practices to design highly functional web sites and web applications. The course includes individual and group projects.

HF 750 Testing and Assessment Programs  (3 credits)
*Program Director approval required for all except MSHFID, MSIT & MSMBA.*

This course presents the principles, methods and tools for addressing usability issues. Topics covered include processes for assessing the usability of the communicative aspects of the human-computer interface in software applications, websites and other forms of interactive media. Students will plan and administer tests and other means of product assessment through simulated usability problems and case studies. Human-computer interfaces and various forms of documentation (print and electronic) used in assignments and exercises will range from prototype to released products.

HF 751 Measuring the User Experience  (3 credits)
*Pre-Req: HF 750. Note: Program Director approval required for all except MSHFID, MSIT & MSMBA.*

This course covers more advanced assessment techniques than studied in HF 750, such as usability benchmarking, competitive testing, and special studies that require advanced measurement skills. The content goes beyond usability to focus on two new overlapping areas: hedonics and the user experience. These new areas focus less on productivity and more on the broader emotional experience with products and services. The course examines metrics suitable for assessing the contribution of the user experience to the business bottom line. The core learning activity is a field-based experience where student teams conduct research, prepare a detailed report, and deliver a presentation to the sponsoring organization. In addition, influential thought leaders from the user experience community contribute to the class.

HF 755 Special Topics in Human-Computer Interaction (HCI)  (3 credits)
*Program director approval required for all students MSHFID or MSIT or MSMBA.*

This course builds expertise for the HCI professional in a wide range of subspecialties related to human behavior and user-centered design. Three five-week modules on selected topics in HCI are taught by faculty with specialties in requirements gathering, web accessibility, interface design, inspection methods, intelligent agents, and remote usability testing. Students are graded for each module, with the three grades combined for the final class grade. Modules change each semester.

HF 760 Intelligent User Interfaces  (3 credits)
*Program Director approval required for all except MSHFID, MSIT or MSMBA.*

This course introduces students to the theory and practice of engineering expert knowledge into system designs. To overcome the limitations of human processing capabilities, the technology industry must increasingly move from a model of providing support, training and documentation in forms external to the system, to a model where this information is seamlessly integrated in the larger system design. Early examples of knowledge-based subsystems include wizards, agents and expert system support. The very nature of expert knowledge, its value to the expert, and the way in which the expert constructs this knowledge are key elements of the course. Students learn to develop strategies for collecting and organizing knowledge from experts, and study ways to integrate expert knowledge in system designs. The course relies heavily on experts from local research and development labs.

HF 761 Mobile Design  (3 credits)
*Program Director approval required for all except MSHFID, MSIT, & MSMBA.*

This course embraces an “informed problem-solving” approach to mobile design. In particular, the approach is directly informed by customers – what they do, what they need and how they interact. With the massive growth in smartphone and tablet usage, it is important to think about how UX designers adapt their approach to design for these devices. Smartphones and tablets offer new capabilities, but also new design challenges. The way humans interact with them is different in their ability to use touch, gestures, and other forms of input such as images and voice. This course examines how the traditional research and design process is altered to enable us to create the best mobile products for our customers.

HF 765 Emerging Interfaces  (3 credits)
*Pre-Req: None. Note: Program Director approval required for all except MSHFID, MSIT & MSMBA.*

This course introduces students to the process of iterative, user-centered design and to the state-of-the-art user interface design and technology. This course allows the students to experience the benefits of iterative design by requiring them to present several iterations for feedback to the class. Furthermore, by having the students design a non-traditional interface in groups, the impact of iterative design and the importance of carefully analyzing the users in the use context are magnified. Students are also introduced to the latest user interfaces and user-interface research, and read many journal and conference articles, identify and present some issues from these papers, and write a research paper on an interface topic.
HF 770 Prototyping and Interaction Design (3 credits)
Program Director approval required for all except MSHFID, MSIT & MSMBA.
This course will cover the fundamental principles and methods of interaction design and prototyping. The goals of this course are to provide students with an understanding of interaction design principles and how those principles are embodied in prototypes. The first half of the course will cover the history of interaction design, universal design principles, patterns, design constraints, metaphor, affordances, aesthetics that affect interaction, visual design considerations, human-computer dialog and time-based design.

HF 780 Field Methods (3 credits)
Program director approval required for all students except MSHFID or MSIT or MSMBA.
This course places the concept of field research within the user-centered design life cycle. Methods examined in the class will typically include interviews, observational studies, contextual inquiry, surveys, card sorts, diary studies, focus groups, and cognitive task analysis; how the methods are used, and how collected data fits with business and technical requirements. The course covers the design, planning and delivery of a field study, including preparation, sample definition, administration and data analysis. Students will examine how the data analysis informs the design process. Special emphasis will be placed on different types of user populations and how they affect the way the field research is implemented. Guest speakers and intensive workshop exercises will be interspersed with lecture. Articles will be discussed during class.

HF 785 Ethnography for Experience Design (3 credits)
Program director approval required for all except MSHFID, MSIT and MSMBA.
Ethnographic research involves naturalistic inquiry aimed at capturing social phenomenon as they occur in a particular setting. Ethnographers can employ multiple data collection strategies to do this, but typically focus on participant/observation methodologies as a primary approach. While primarily found in social science disciplines such as anthropology and sociology, ethnographic approaches increasing are being applied in IT/IS fields for the purposes of achieving better technological designs, improving the user experience, and facilitating collaborative work. This course will introduce the student to the origins of the ethnographic method, discuss the theoretical bases of its use, identify strategies for successful ethnographic inquiry, develop initial skills for data analysis and reporting, and provide examples of how ethnographic studies of work and technological use have been used in a variety of business and organizational contexts.

HF 790 Internship in Human Factors in Information Design (3 credits)
This course provides students the opportunity to integrate the classroom experience in a diverse range of field experiences in leading high-tech and web development groups. The course requires the development of an educational plan to identify the student’s career goals and how those goals can be enhanced through the internship experience. The course also requires close coordination with the internship coordinator and regular meetings with the coordinator throughout the semester.

HF 795 Research Methods for Human Factors (3 credits)
Program director approval required for all students except MSHFID, MSIT, and MSMBA.
This course prepares students to engage in professional and scholarly research in human factors, with an emphasis on user-experience design. By critiquing research methodologies and methods from journal and practitioner publications, students will discuss the strengths and weaknesses of particular research designs. Through lectures, readings and interactive classroom discussions of research studies, students will learn how to apply the most appropriate research methodology(s) and method(s) to a particular research problem. The course covers the full spectrum of research from basic to applied.

HF 799 Experimental Course in HF (3 credits)
Program director approval required for HF (3 credits)
Pre-Req: HF 795 and Director Approval.
This course prepares students to engage in professional and scholarly research in human-centered design, with an emphasis on human factors and usability. By critiquing research methodologies and methods from journal and practitioner publications, students will discuss the strengths and weaknesses of particular research designs. Through lectures, readings and interactive classroom discussions of research studies from the fields of human factors and information design, students will learn how to apply the most appropriate research methodologies and methods to particular research problems. The first part of the course engages students in debates concerning conflicting research traditions and methodologies applied to human factors. After students understand the rationales of differing research traditions, they will be expected to employ and justify the best research approaches to investigate and solve problems of human factors, usability and design development.

HF 800 User Experience Thesis (3 credits)
Pre-Req: HF 795 and Director Approval.
This course is by invitation to students having shown superior knowledge, ability and skill in their course work. Students need to take HF 700 and HF 795 in the first semester to prepare for their research project. Application for thesis option is open to full-time and part-time students. Students need to apply for the thesis option when they enter the MSHFID program. Students will be evaluated at that time to determine if they possess appropriate academic experience to pursue the thesis option. The decision regarding their admittance will be made in mid-October. Working with a thesis advisor, candidates will develop a research prospectus based on their research interest. The prospectus will be reviewed and approved by the department research committee.