

MSHF

HANDBOOK OF THE MASTER OF SCIENCE IN PSYCHOLOGY,
OPTION IN HUMAN FACTORS PROGRAM

2013-2014

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I. INTRODUCTION

A. Overview of the MS in Psychology, Option in Human Factors Program

Human factors (also known as ergonomics or human engineering) examines human perception, cognition, and behavior within a work setting. It looks at human behavior and capabilities in order to find the best ways to design products, equipment and systems for maximum safe, effective, satisfying use by people.

The Option in Human Factors under the MS in Psychology at CSULB is designed to prepare students to apply knowledge of psychology to the design of jobs, information systems, consumer products, workplaces and equipment in order to improve user performance, safety and comfort. The MS-Human Factors option program is designed as a terminal MS degree, but it also provides excellent preparation for advanced graduate work. This program is accredited by the Human Factors and Ergonomics Society, the accrediting board for human factors programs in the U.S.

Students in the CSULB Human Factors program acquire a background in experimental psychology and research methods as they are trained in the application of the material through courses in human factors, computer applications and interface design. Special topics seminars, in areas such as large-scale simulation and usability testing, complement the core program of study. Finally, students complete a thesis in their chosen area of human factors.

B. MSHF Student Learning Outcomes

At the end of the program, students should have the ability to:

1. Apply knowledge of psychology to the design of jobs, information systems, consumer products, workplaces, and equipment to improve user performance, safety and comfort.
2. Apply methodologies that are used in the design of human-machine systems.
3. Design research to answer basic and applied issues in Human Factors.

II. GENERAL PROCEDURES

Students interested in pursuing an MSHF degree must apply to the Psychology Department as well as the University.

1. Orientation

After acceptance into the graduate program, students will be invited to attend an informative orientation session. This meeting is prior to the student's first semester in the program. Students will be introduced to members of the program faculty. Coursework and other program requirements and opportunities will be discussed.

2. Registration

Prior to registration each semester, students will receive information from the University regarding registering for courses; instructions are provided via the students' MyCSULB accounts. A tentative list of Psychology graduate level courses will be posted on the department web site as soon as available.

3. Graduation Writing Assessment Requirement (GWAR) and the Writing Proficiency Exam (WPE)

Every degree candidate must fulfill the Graduation Writing Assessment Requirement (GWAR) by either scoring a 4.0 or higher on the Analytical Writing essay portion of the GRE or GMAT, or by passing the Writing Proficiency Examination (WPE), to be certified proficient in written composition in English. Students who met/fulfilled the WPE requirement during their baccalaureate degree program at CSULB or at another CSU campus are exempt from retaking the WPE as a graduate student. Confirmation from other CSUs is required. Graduate students should satisfy the WPE requirement *by the end of their first semester*. Instructions are on the CSULB web site (www.csulb.edu/divisions/students/testing/wpe). If a student is unable to pass the WPE, the GWAR page has additional instructions: <http://www.csulb.edu/divisions/aa/gwar/>

4. Advancement to Candidacy

Advancement to Candidacy is the filing of an approved Program (formal listing of required coursework on "Advancement to Candidacy" form) with the Graduate Advisor. This form will be forwarded to Enrollment Services and is the document used to perform the student's "grad check." After the student completes a minimum of 6 units towards fulfillment of the MSHF degree, and successfully passes the GWAR requirement, the student should advance to candidacy. (This usually happens during the second semester in the program.) Program coursework requirements are available via the department web site and Graduate Office, and also appear on the last page of this handbook. MSHF students should make themselves familiar with their required coursework. The Graduate Advisor will schedule Advancement to Candidacy workshops throughout the academic year. A student must be advanced to candidacy before the last semester of his or her coursework and prior to filing for a "grad check" (AKA "Request to Graduate"). CSULB requires master's students to meet with their Graduate Advisor in person to complete this important step towards Candidacy.

5. Grad Check AKA Request to Graduate

At least one semester prior to the last semester of regular coursework, the student is required to file a graduation check through the University. This process will inform and advise the student of progress made toward completing his or her graduation requirements. Please note that the GWAR requirement must be fulfilled before a grad check can be requested.

6. GPA Requirements

All students must maintain a minimum cumulative 3.0 GPA throughout the program. Students whose cumulative GPA falls below this level will be placed on academic probation (see online CSULB Catalog for details). *There is no "repeat/delete" for graduate students.* A minimum 3.0 GPA in MSHF program coursework is also required to graduate.

7. Seven Year Rule

All requirements of the degree, including thesis, must be completed within seven years of the date of the student's first program course.

8. Communication

Be sure to continually update and keep the Psychology Graduate Office, as well as Enrollment Services (via MyCSULB), informed of your current email and home address. Important program information will be disseminated via email and mailing, and also posted on the department web site (www.csulb.edu/psychology).

9. Student Responsibility

Students are responsible for information covered through university publications, including the *Catalog*. These publications cover such topics as plagiarism, GPA requirements, educational leave, academic probation and disqualification, registration instructions and deadlines, and much, much more. The CSULB *Catalog* is available on-line at www.csulb.edu. The MSHF program adheres to CSU Executive Order #970 (Student Conduct Procedures: www.calstate.edu/eo/EO-970.html).

III. MSHF DEGREE PREREQUISITES AND REQUIREMENTS

A. Prerequisites for the MS in Psychology, Option in Human Factors Degree

Applicants must have a bachelor's degree with a major in Psychology OR a bachelor's degree in another field of study, 24 upper division semester units of Psychology (including the three courses listed below), and the equivalency of four CSULB lower division courses (General Psychology, Introductory Statistics, Research Methods, and Psychobiology):

1. PSY 310 - Intermediate Statistics (equivalent to two semesters or three quarters of sequential statistics)
2. PSY 331 - Sensation and Perception
3. PSY 332 - Human Cognition

The prerequisite courses listed above are required in addition to the 36-unit graduate program. If not taken previously, these courses should be completed by the end of the first year of the graduate program. Unit credit will not be counted towards the Master's degree.

B. Graduate Program Degree Requirements

The MS-Human Factors is a 36-unit degree that includes the following:

(1) Required Courses

The following nine courses:

1. PSY 511 Statistical Design and Analysis of Experiments
2. PSY 518 Computer Applications in Psychology
3. PSY 527 Human Factors
4. PSY 533 Research in Cognition and Learning
Or
PSY 634 Seminar in Cognition
5. PSY 627 Human Factors' Methods
6. PSY 633 Seminar in Perception and Attention
7. PSY 635 Seminar on Situation Awareness
8. MAE 508 Systems Engineering and Integration
9. CECS 448 Use Interface Design

And one course chosen from the following:

- PSY 512 Multivariate Analysis
- PSY 544 Cognitive Neuroscience
- PSY 696 Research Methods
- PSY 697 Directed Research
- ENGL 419 Writing in Science and Technology

(2) Thesis Requirements

Each student must complete an original thesis research project. As part of this process, the student must pass a preliminary oral examination on the thesis proposal and a final oral examination in defense of the completed thesis document. (See section IV for details.)

- PSY 698 Thesis (6 units)

IV. THESIS

The thesis is the capstone event in the graduate student's educational experience. It allows the student to work relatively independently on a major project and to demonstrate the student's ability to utilize psychological knowledge and skills in planning, conducting and reporting research. An original empirical investigation is required for the thesis.

The thesis process generally includes the following steps (detailed via the *Psychology Thesis Guidelines* publication, linked from the department web site):

1. Proposal

Committees differ in what they require in the proposal, but in general they usually include Introduction and Methods sections, as well as a plan for statistical analysis. A proposal should specify clearly what you propose to do for your thesis so that you and your thesis committee can discuss the details and arrive at definite decisions and agreement. A proposal outline is available on-line via the *Psychology Thesis Guidelines* publication for guidance in organizing the proposal. Examples of past proposals are available for checkout from the Graduate Office. The approved proposal is a contract between you and the department.

2. MSHF Thesis Committee

The student must formally *ask* three members to serve on her/his thesis committee. The committee serves to coordinate the thesis process, and to serve as a resource through all stages of the process. While the other members will provide assistance, the Thesis Chair will be the major contact point with the student and will oversee the other committee members' work with the student. The Thesis Chair will establish guidelines for the student and timetables to be followed to ensure completion of the thesis in a reasonable time. It becomes very important to ask a professor to chair your committee who has similar research interests and with whom you work well.

An MSHF thesis committee shall consist of at least two tenured/tenure-track faculty members from Psychology (including the Thesis Chair) and one other individual who holds at least a Master's degree. If there are compelling reasons, a student may petition the MSHF Program Committee to approve a thesis committee that includes a tenure-track faculty member from Psychology, who shall serve as the Thesis Chair, a tenure-track faculty member from another CSULB department or program and other individual(s) from the community or university who hold(s) at least a Master's degree. All thesis committee members must be present at both preliminary and final orals.

The thesis committee *must be approved* by the department Graduate Advisor (as soon as formed) and the college Associate Dean. The Graduate Advisor will file the appropriate paperwork.

3. Preliminary Orals

When the thesis committee believes your proposal is ready, you will schedule preliminary orals. This step involves getting your entire committee together at a meeting lasting approximately one hour. Here you will discuss the background, design (including the methodologies), planned analysis and expected outcomes of your thesis proposal. Any problems that can be foreseen in your methodology will be ironed out at this session. This step must be completed before actually implementing the project. Submit an orals announcement to your thesis chair as an email attachment, as well as a hard copy of your proposal draft to the Graduate Advisor, **one week prior** to the orals meeting. Instructions (with a visual example) for the preparation of the orals announcement are contained in the online Graduate Office's *Psychology Thesis Guidelines*, and a Word template is available via the department web site as well.

4. IRB/AWB Approval

After successfully passing preliminary orals, the student must file an application for approval (protocol) with the University Institutional Review Board (IRB) or the Animal Welfare Board (AWB), as appropriate. Additional approval is necessary if the PSY 100 subject pool is to be used. After gaining the approval(s), the student may implement the project agreed upon. The IRB or AWB application is to be filed online; instructions are provided on the Office of University Research's web site: www.csulb.edu/divisions/aa/research/our/compliance/irb/

5. Final Orals

Once you have collected the data, you will analyze it and prepare the final thesis draft. This will include the Literature Review, Methods, Results, and Discussion sections. The student will schedule another one hour meeting, where a formal presentation of the project will be made to the committee for the purpose of the thesis defense. Any revisions required by the committee must be formalized at this meeting. You should announce your final orals via your thesis chair (again, as an email attachment) and submit a draft of your thesis to the Graduate Advisor **one week prior** to the final orals meeting.

6. Thesis Guidelines Publications

If you are unsure about a project or about the format of the written materials, previous theses are available via an online database (link on department and Thesis Office's web sites). The *Psychology Thesis Guidelines* is available via the department web site as well as a list of faculty areas of research interests and typists who may be contracted to prepare theses manuscripts. The University's *Style and Format* guidelines publication is linked from the department and Thesis Office's web sites, which should be viewed or downloaded prior to beginning your thesis. This publication is to be used for current formatting requirements, per university requirements. Students are encouraged to familiarize themselves closely with these guidelines. Additional advisory information is available on the thesis office's web site.

The official Department Guidelines for Faculty/Student Responsibility for MA/MS theses are listed below.

Guidelines for Faculty/Student Responsibility for MA/MS Theses

It is recognized that both the faculty members on a thesis committee and the student have obligations related to the smooth conduct of the MA/MS process. To that end, it is expected that the following guidelines will be observed:

Preliminary Orals

1. The committee should be given a minimum of **one week** to read and review the thesis proposal before the date of preliminary orals can be officially announced (minimum of two weeks before date of orals meeting). If a committee member cannot meet this deadline, he/she must inform the student and the Chair immediately and negotiate an alternative acceptable to all parties.
2. The proposal should contain the introduction, which includes a literature review, statement of the problem to be investigated and the methods and analyses to be used.
3. The distributed abstract for preliminary orals should contain a clear statement of the problem, methodology and planned analyses of the study.
4. The preliminary oral should review the proposal.
5. The preliminary oral signature page (provided to the Thesis Chair by the Graduate Advisor) should contain the abstract, the format of the required analyses and a general statement regarding expected outcome(s) of the study.

Final Orals

1. It is the responsibility of the student to inform his/her faculty committee **during the first week of the semester** that she/he intends to submit a thesis during that semester.
2. It is the responsibility of faculty to inform their graduate students of plans to be on a leave of absence or sabbatical leave **as soon as those plans are known, and no later than the end of the semester prior to the period of absence**. A faculty member's "graduate students" are defined as all of those individuals for whom the faculty member has agreed to serve as either a **Thesis Chair** or a **committee member**.
3. It will be the responsibility of the Thesis Chair to see that the thesis draft for final orals contains all the required analyses and appropriate interpretations prior to distribution to the thesis committee.
4. The committee should be given a **minimum of two (2) weeks to read and review the thesis draft before the date of final orals is officially announced**. If a committee member cannot meet his deadline he/she must inform the student and the Thesis Chair **immediately** and negotiate an alternative acceptable to all parties.
5. The committee members should write and submit to the student their comments, suggestions, changes, etc., regarding the thesis draft so that the student may go over them with the committee Chair prior to orals. Any substantive changes required by committee members should be presented at this time. (Substantive changes will include any of the following: extensive new data analysis, extensive alternative data analysis or extensive alternative interpretations.) It is the student's responsibility to provide the committee members with a current draft of the thesis prior to final orals.
6. Committee members may make specific suggestions for changes in your thesis at your final oral meeting. Be sure you agree with and understand thesis suggestions, because you will have to make them before final approval is granted. However, do not hesitate to discuss fully any changes you don't understand or agree with.
7. Final orals should be primarily a review of the Results chapter and the Discussion chapter of the thesis.

V. FACILITIES

1. Computer Facilities

Department Computing Facilities

Information regarding the computer facilities housed in the Psychology building may be found on the department web site: www.csulb.edu/colleges/cla/departments/psychology/newman-lab/

It may be possible to reserve one of the computer labs for research projects with faculty and department approval, when available. However, class demands for these resources have made it more difficult to find available time. Check with your thesis committee chair if interested.

Campus Computing Facilities

There are two open computer labs on campus, in the Steve and Nina Horn Center, north campus, and the first floor of the Main Library. These labs are open the same hours as the campus library. Information may be found at: www.csulb.edu/library/guide/computing.html

CSULB Email and Library Accounts

Students can set up their own CSULB “BeachMail” email account and access additional information about BeachMail via the following web page: http://www.csulb.edu/divisions/aa/academic_technology/thd/email/beachmail/

To use PsycINFO and other databases from offsite you must set up a Library account via the following web page: <https://coast.library.csulb.edu/patroninfo> You can also renew books (before they are overdue), and request materials not available in the CSULB Library through Interlibrary Services (ILLiad at the Beach).

2. Library Facilities

In order to assist graduate students, the library has many services that can maximize your success in conducting research.

- A. For psychology students, assistance with journals and other reference material is available at the Reference Desk on the first floor of the library, adjacent to the Spidell Technology Center. Students are encouraged to seek help and to inquire about the abstracts that are available for their topic of interest.
- B. A student enrolled in PSY 698 (Thesis) may check out books for an entire semester, rather than the usual three-week period. To check materials out for this extended time, a card may be obtained in the library. This card must be signed by the Graduate Advisor.
- C. Many research databases are available via the Internet for CSULB students, including PsycINFO, PsycArticles, and Tests in Print. To access on and off campus, you will need to set up a Library Account, complete with password (see Library Accounts above). Electronic journals may be accessed via these web addresses:

www.csulb.edu/library/eref/psychology.html

www.csulb.libguides.com/content.php?pid=100138&sid=751662

3. Student Study Center

Sharing of resources and information is an important part of the graduate student experience. The department’s Student Study Center is located in room Psy 314.

4. Psychology Assessment Materials (PAM)

The Psychology Assessment Materials (PAM) Center (located in room Psy 204) has personality inventory tests available for graduate student research. Students can review these tests (if interested in proprietary tests) before purchasing them directly from the test publishers, or borrow them for research use (if interested in non-proprietary measurement scales). The current list of test materials and loan authorization forms are posted outside of room Psy 204. Students must obtain the signature of the faculty member supervising the research on their loan form.

5. Student Services

University Student Services are available in such areas as:

Academic advising through the Disabled Student Services Office: www.csulb.edu/divisions/students/dss/

Personal and health counseling through:

Counseling and Psychological Services (CAPS) Office: www.csulb.edu/divisions/students/caps

Community Clinic for Counseling and Educational Services: www.ced.csulb.edu/clinic

Financial assistance via the Office of Financial Aid: www.csulb.edu/depts/enrollment/financial_aid/

6. Graduate/Career Resources Rooms

Information on PhD programs, as well as other materials on the subject of graduate school, is available in the Graduate Resources and the Career Resources rooms of the Psychology Resource Office (room Psy 206). Visit their web site for hours: <http://www.csulb.edu/colleges/cla/departments/psychology/pro/>

VI. GRADUATE ASSISTANT POSITIONS

Application

Students interested in serving as a Graduate Assistant (GA) should submit a GA application to the Graduate Advisor. A new application is required each semester. Positions are open until filled. Review of applications will begin early summer for the Fall semester and late fall for the Spring semester. Applications are available via the department web site and must be submitted by the announced deadline.

Types of GA Jobs

Each semester the department of Psychology hires approximately 10-13 graduate assistants to perform various activities. The assignments are usually 10 hours per week for 17 weeks for the appropriate semester. Most GA assignments fall into two major categories. Some assignments are to assist with the introductory research methods course (PSY 220). This involves preparing materials, grading papers and assisting students. Other GA assignments support introductory and intermediate statistics courses (PSY 210, 310). These assignments generally involve grading papers, assisting students during the assigned lab time of the course and helping students with various statistical software packages. Both research methods and statistics GA positions may also involve providing support for the department computer lab, and all GAs may assist with the Student Study Center. Other positions include support for the PSY 301 course, 314 and seasonal courses (fall or spring only) such as 427/527 and 456/556.

Benefits of a GA Position

- Financial: If appointed for 10 hours of work each week, for two semesters, a first year GA receives approximately \$6000 per year.
- Educational: By teaching, GAs can further develop their own psychological skills (teaching and research).
- Experiential: Working closely with a faculty member can add to a GA's knowledge and experience.
- Convenience: Having a job on campus can save travel time and study time.

VII. DEPARTMENT AND COLLEGE AWARDS

The College of Liberal Arts presents the following awards each Spring to outstanding Master's students: 1) **Graduate Dean's List of University Scholars and Artists**, and 2) **Best Thesis Award for the College of Liberal Arts**, through a competitive process. The Psychology department awards the **Gilbert J. Padilla Memorial Award**, the **Outstanding Master's Students in Psychology Award** and the **J. Robert Newman Scholarship**. (See below for award descriptions.)

Graduate Dean's List

Early in the Spring semester, the Graduate Advisor distributes to department faculty a memo requesting nominations for the Graduate Dean's List, on which the College selection criteria are listed. The memo contains a list of students who graduated the previous Fall and Summer semesters and a list of those students who have completed preliminary and/or final orals. Faculty are instructed to only nominate students from the second list who *have graduated* or *will graduate during* the current Spring or upcoming Summer semester.

When nominations are received by the Graduate Advisor, the students' GPAs are checked for eligibility (3.75 min.). The eligible students are then emailed a letter informing them of their nomination and the identity of the faculty member(s) that nominated them. The students are instructed to inform the Graduate Advisor if they wish to pursue the award. If so, they must secure two (2) letters of recommendation from faculty, return the completed application, and supply any additional materials that might support their nomination.

The Psychology department's Graduate Committee, consisting of three faculty members, (one from each of our three graduate programs), reviews all the application material submitted. The students are then rank-ordered and the top 2 nominees are forwarded to the College of Liberal Arts. The number of awardees from each college is limited to one percent of the students pursuing a master's degree. Eight awards were given by the College of Liberal Arts during the 2013 Commencement.

Gilbert J. Padilla Memorial Award

The #1-ranked Psychology Graduate Dean's List nominee receives the **Gilbert J. Padilla Memorial Award**.

Outstanding Master's Graduate Award

Psychology students who are nominated but not selected by the College for the Graduate Dean's List may receive the **Outstanding Master's Graduate Award for the Department of Psychology**.

Best Thesis Award

At the time of final orals, the student's thesis committee may recommend a thesis for consideration for the department's Best Thesis Award. Just prior to the award's deadline, these rankings are reviewed by the Graduate Advisor and the highest-ranked theses are selected. The Graduate Committee reviews them and selects one thesis to represent the Psychology Department, which is then forwarded to the College for consideration of **Best Thesis Award** (one is awarded per each College of Liberal Arts commencement ceremony).

J. Robert Newman Scholarship

The MAPR and the MSIO committees each may select one outstanding incoming student as a **J. Robert Newman Scholar**. Selected eligible recipients receive up to \$1250/semester, for a maximum of four semesters, when funding allows.

Boeing Company University Relations Human Factors Graduate Scholarship NASA University Research Center Human Factors Graduate Scholarship

Scholarships up to the amount of \$3000 may be awarded every semester, with the total number of scholarships awarded each semester to be determined by the number of qualified students and the availability of funds provided by the Boeing Company University Relations and NASA University Research Center Human Factors Graduate Scholarship Awards program. Students may apply and earn either award for more than one semester. Applications are available via the department web site.

VIII. STUDENT AND PROFESSIONAL ORGANIZATIONS

CSULB HFES Student Chapter

The CSULB Human Factors and Ergonomics Society Student Chapter is dedicated to promoting the understanding of human factors. The student chapter organizes and participates in various activities during the year in an effort to promote human factors. As of December 2012 the chapter has been awarded the prestige of Gold Chapter by the national Human Factors and Ergonomics Society a total of 7 times: in 2006, 2007, 2008, 2009, 2010, 2011 and 2012.

Every year, they host an annual conference where students and faculty from other institutions and other CSULB Psychology master's students, as well as members of the public, are invited to join the members of the Human Factors and Ergonomics Society for a day of speakers and a poster session.

Professional Organizations

Human Factors and Ergonomics Society
<https://www.hfes.org>

American Psychological Association - Division 21
<http://www.apa.org/about/division/div21.aspx>
<http://www.apa21.org/>

International Ergonomics Association
<http://www.iea.cc/>

Usability Professionals Association
<http://www.upassoc.org/>

Other Related Professional Organizations

Systems, Man and Cybernetics Society
<http://140.113.149.159/>

Industrial Designers Society of American
<http://www.idsa.org/>

Institute of Industrial Engineers
<http://www.iienet2.org/>

Society for Information Display
<http://www.sid.org/>

Society of Manufacturing Engineers
<http://www.sme.org/smehome.aspx>

Assoc for Computing Machinery/Special Interest Group on Computer Human Interaction (ACM/SIGCHI)
<http://www.sigchi.org/>

American Society of Safety Engineers
<http://www.asse.org/>

Office Ergonomics Research Committee
<http://www.oerc.org/>

International Society for Occupational Ergonomics and Safety
<http://www.iso.es.info/>

IX. RECENT INTERN PLACEMENTS FOR MSHF STUDENTS

NASA Ames Flight Deck Display Research Center
NASA Dryden Flight Research Center
NASA Jet Propulsion Laboratory
Boeing C-17 Ergonomics Center

Rockwell-Collins Corp
Chevron Inc.
Battelle Corp

X. EMPLOYMENT OPPORTUNITIES FOR THE MSHF GRADUATE

Aerospace systems
Accident analysis
Computer software and hardware design
Communications technology
Educational technology
Environmental assessment and design
Ergonomist
Forensic psychology
Government research laboratories
(Air Force, Army, Navy, NASA)
Graphics and information design
Health and medical technology design
Human factors engineer
Product design
Safety scientist
Systems management
Technician specialist
Training development
University faculty
Usability analysis
Virtual reality
Workplace design

XI. RECENT MSHF THESIS TITLES

Application of Population Stereotypes to Computerized Tasks

Audio and Audiovisual Cueing in Visual Search: Effects of Target Uncertainty and Auditory Cue Precision

Auditory Spatial Facilitation: Effects of Cue Reliability and Amplitude Variation on Visual Search Performance

Can a CrossModal-Accessory Stimulus Elicit the Top-Bottom Prevalence Effect?

A Comparison of Differences in the Hierarchical Placement of Radiographic Findings Among Different Health Care Specialists and an Analysis of the Effects on Proper Case Management and Referral Decisions

Effectiveness of Training Methods on Near-Term NextGen Air Traffic Control Performance, Workload, and Situation Awareness

Effects of Contrast Polarity between Background and Foreground in Air Traffic Control Displays for Time-To-Contact Judgments

Effects of Data Communications Failure on Air Traffic Controller Sector Management Effectiveness, Situation Awareness, and Workload

Effects of Positive Mood Induction on Operator Performance and Subjective Workload Levels for Compatible and Incompatible Display-Control Mappings

Effects of Practice with Foot- and Hand-Operated Secondary Input Devices on Word Processing Task Performance

Examining the Effects of an Animated Word-Tracer as a Reading Aid for Electronic Text

Measuring Situation Awareness: Can the Presentation of an Online Probe Question Change an Operator's Situation Awareness?

Use of Image-based Mnemonic Techniques to Enhance the Memorability of User-Generated Passwords

XII. DESCRIPTION OF MSHF PREREQUISITES AND GRADUATE PROGRAM COURSES

Courses listed on this page are through the Psychology Department:

Prerequisites

310. Intermediate Statistics (4)
Prerequisites: PSY 100, and 210 or other Introductory statistics course. Basic theoretical concepts of statistics and use of these concepts in selection and development of model testing, hypothesis testing and parameter estimation procedures. Both single measure (univariate) and correlation (bivariate) concepts are included. (Lecture 3 hours, laboratory 2 hours)
331. Sensation & Perception (3)
Prerequisites: 100, 220 and 241. Introduction to the scientific study of sensory processes and perceptual principles from a psychophysical and physiological perspective, and the methods used to investigate them. Topics may include vision, audition, psychophysics, and object and space perception.
332. Human Cognition (3)
Prerequisites: PSY 100, 220 and 241. Study of higher-order processes basic to the acquisition of knowledge. Includes thinking, problem solving, creativity, information processing, decision making, judgment, concepts and imagination.

Graduate Program Courses

- 511/411. Statistical Design and Analysis of Experiments (3)
Prerequisite: PSY 310 or equivalent. Focuses on the logic, application, and interpretation of analysis of variance (ANOVA) models in addition to other statistical procedures. Various issues of research design and experimentation are also covered. (Lecture 3 hours.)
- 512/412. Multivariate Statistical Analysis (3)
Prerequisite: PSY 310 or equivalent. Covers logic, application, and limitations of multivariate (multiple independent and dependent variables) statistics. Topics may include multivariate analysis of variance, single and multiple correlation/regression, logistic regression, factor analysis, and path analysis. (Lecture 3 hours.)
- 518/418. Computer Applications in Psychology (3)
Prerequisite: PSY 310 or equivalent. Foundations of computer technology and its application to psychology. Emphasis on real-time control by digital computers in psychological research and applications. (Lecture 2 hrs, lab 3 hrs.)
- 527/427. Human Factors (3)
Prerequisites: PSY 310 or equivalent, and two of the following: PSY 331, 332 or 333. Systematic application of psychological principles to the design of person-machine systems. Emphasis in the laboratory on the development of skills required of human factors psychologists. These skills will include systems analysis, cognitive task analysis, rapid prototyping and usability testing. (Lecture 2 hrs, lab 3 hrs.)
- 533/433. Research in Cognition & Learning (3)
Prerequisites: PSY 220, 310 or equivalent, and 331 or 332 or 333. Research methods in cognition, learning, and perception. Laboratory includes experiments on selected topics. (Lecture 2 hrs, lab 3 hrs.)
- 544/444. Cognitive Neuroscience (3)
Prerequisites: PSY 332 and one of the following: PSY 340, 341, or 342. Explores brain systems responsible for cognitive processes in normal humans, integrating theory from texts and current research from original sources.

Courses listed above taken at CSULB at the 400-level cannot be used to satisfy the MSHF requirements. Courses taken at the 500-level and applied to a Bachelor's degree at CSULB also cannot be used.

627. Human Factors' Methods (3)
Prerequisite: PSY 527. An Advanced graduate level course on methods commonly used in the field of human factors. These methods include analytic techniques used during the design of human-machine systems (e.g., task analysis, simulation), techniques used to evaluate functioning systems (usability test, critical incident surveys) and techniques used to measure human performance (e.g., workload, situation awareness).
633. Seminar in Perception and Attention (3)
Prerequisites: PSY 331 or 332, consent of Graduate Advisor. Examination of methods, theories, and experimental evidence in selected topics from the areas of sensation, perception, and attention.
634. Seminar in Cognition (3)
Prerequisites: PSY 332 or 333, consent of Graduate Advisor. Examination of method, theory, and experimental evidence in selected topics from the area of cognition.
635. Seminar on Situation Awareness (3)
Prerequisites: PSY 331 or 332, consent of Graduate Advisor. Examines research on situation awareness, its importance in systems design and its application in areas such as driving and aviation. Also examines measurement tools designed to assess situation awareness.
696. Research Methods (3)
Prerequisites: PSY 411/511 or 412/512, and consent of Graduate Advisor. Preparation and completion of thesis proposal for preliminary oral examination. Power calculations, research methods, and statistical concepts and procedures. Ethics, human subjects protection and responsible conduct of research. Includes the required comprehensive examination for MA Research students.
697. Directed Research (3)
Prerequisites: Consent of Graduate Advisor and department. Theoretical and experimental problems in psychology requiring intensive analysis.
698. Thesis (1-6; a total of 6 required for MSHF degree)
Prerequisites or corequisites: Advancement to Candidacy, consent of Graduate Advisor. Planning, preparation and completion of a thesis in psychology. Must be enrolled for a total of **6** units of credit (but *no more* than **6 total**).

CECS

448. User Interface Design (3)
Prerequisites: CECS 323 or consent of instructor. Evaluation, design and programming of user interface systems. Fundamentals of human cognition, system characteristics, and the interaction between humans and systems. Usability methods and user/task-centered design. Tools for designing and building user interfaces, with emphasis on rapid applications development. (Lecture 2 hours, laboratory 3 hours.)

ENGL

419. Writing in Science, Social Science, and Technology (3)
Intensive practice in writing on topics in science and literature. Contemporary examples will be studied as models.

MAE

508. Systems Engineering and Integration (3)
Tools and methods employed by systems engineers in aerospace industry. Development of system functions, requirements, verification and validation, and interfaces in context of integrated product teams and the product life cycle. Trade studies and risk management. Projects assigned, written reports and oral presentations are required. Additional projects required for MAE 508. (Lecture-problems 3 hours.)

MS Human Factors Elective Project (PSY 697)

Objective: The research project is designed to ensure that students can design, develop, execute, analyze and write up an experiment in human factors, thus preparing him/her for thesis and other research work. Unlike a thesis, the project topic is not chosen by the student, but assigned by the faculty supervisor.

Credit: The project credit is obtained through PSY 697 - Directed Research. Each student must receive credit for a total of 3 units of 697. Although the units may be taken in one semester, the project can take two semesters (e.g., Fall and Spring).

Experiment: The experiment for the project will be assigned by the faculty supervisor (and the faculty supervisor may be assigned by the MSHF Program Committee). The faculty will provide some key readings on the experiment, but the student is expected to go beyond these when preparing the Introduction Section of the report.

Grade: To help you stay on track (a critical skill in thesis and future research work!), we have devised the following schedule, for your project (dates below are based upon a fall semester start). Your grade in PSY 697 will be based, in part, on whether you meet these deadlines. NOTE: *When you hand in draft sections of your report, the faculty may take up to one week to provide feedback.*

Due Dates

Fall Semester

November 1st: ***Complete penultimate draft of the Introduction Section*** (this means the faculty supervisor has seen several drafts of the introduction before this date).

November 10th: *IRB completed with faculty and submitted to the Office of University Research.*

December 1st: *Experimental apparatus and materials completed.*

End of Finals Week: ***Complete Method Section.***

Spring Semester

February 15th: *Data collection is completed.*

April 1st: ***Results Section.***

End of Finals Week: ***Complete APA Style Paper.***

MSHF Program Check List

See below for a list of the required steps in the MSHF Program. Refer to expanded information located in this handbook regarding each item listed.

- _____ Complete outstanding prerequisite courses
by first semester

- _____ Fulfill GWAR requirement
by end of first semester

- _____ Complete PSY 697 Elective Project (optional)

- _____ Advancement to Candidacy
second or third semester

- _____ Complete Thesis Project (*refer to Psychology Thesis Guidelines*)
 - _____ Ask faculty member to be Thesis Chair
 - _____ Add two additional members to thesis committee
 - _____ Preliminary Orals
 - _____ IRB Approval
 - _____ Final Orals
 - _____ Submit Thesis

- _____ File for Graduation (AKA Grad Check)
deadline: 10/15 of third semester

- _____ Complete Program Coursework
 - _____ Thesis units
total of six units take during second year

Name: _____ WPE: _____

Address: _____

Phone: _____ CSULB ID# _____

Prerequisites: PSY 310 _____ PSY 331 _____ PSY 332 _____

REQUIREMENTS: MS-HUMAN FACTORS DEGREE (AS OF FALL 2011)

COURSE	TITLE	UNITS	Completed		SEM/YEAR TO BE TAKEN
			Grade	Sem/Year	
The following nine courses:					
PSY 511	Statistical Design & Analysis	3			
PSY 518	Computer Applications in Psych	3			
PSY 527	Human Factors	3			
PSY 533 or PSY 634	Research in Cognition & Learning Seminar in Cognition				
PSY 627	Human Factors' Methods	3			
PSY 633	Seminar in Perception & Attention	3			
PSY 635	Seminar on Situation Awareness	3			
MAE 508	Systems Engineering/Integration	3			
CECS 448	User Interface Design	3			
One course chosen from the following:					
PSY 512	Multivariate Statistical Analysis				
PSY 544	Cognitive Neuroscience				
PSY 696	Research Methods				
PSY 697	Directed Research				
ENGL 419	Writing in Science and Technology				
Six units of Thesis (PSY 698):					
PSY 698	Thesis	6			
TOTAL UNITS		36			