

MSHF

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

2020-2021

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Masters of Science

Human Factors

I. INTRODUCTION

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

The Psychology Department began its graduate program in 1952 with a general Master of Arts (MA) degree. This program was, and continues to be, well suited to the needs of students planning to enter doctoral programs, teach at community colleges, or obtain positions requiring advanced psychological training. At that time, students could take some courses that prepared them for careers in human factors but no formal program was offered. In the 1970's the Master of Science in Industrial Psychology degree was established with human factors as one of three core areas, but little human factors courses were offered. In 2005, a separate Master of Science degree, Option in Human Factors program was launched. The formalization of an official, separate degree (MSHF) allows for course work that is designed specifically to provide a background in human factors research and design methodologies, and provide experience by applying this knowledge to students' Theses and internship opportunities. In 2009, the MS Human Factors degree was accredited by the National Chapter of the Human Factors and Ergonomics Society, the leading organization for scientists, engineers and academicians in the field. In 2017 this accreditation was renewed.

B. 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. A practicum during the second year provides hands-on experience with local industrial or governmental organizations. Finally, students complete a thesis in their chosen area of human factors.

B. MSHF Student Learning Outcomes

Knowledge Base in HF/E related fields

By the completion of the Master's degree, students will:

Demonstrate knowledge of established research and theories of human capabilities and limitations in the areas of:

Perception

Attention

Learning and memory

Reasoning and Decision Making

Action performance

How the environment influences decision making and performance

Demonstrate Knowledge of human-computer interaction including:

Usability testing

Auditory/visual display design

Knowledge engineering and decision making

Research Methodology in HF/E related fields

By the completion of the Master's degree, students will:

Demonstrate the ability to apply Evidence-Based HF/E Methods to the design of:

Jobs

Information systems

Consumer products

Workplaces

Equipment to improve user performance, safety and comfort

Demonstrate the ability to apply methodologies that are used in the design of human-machine systems

Demonstrate the ability to investigate basic and applied issues in Human Factors related areas.

Practical (applied) HF/E experience

By the completion of the Master's degree, students will:

Engage in real-world research and practice in the field

Use academic knowledge and professional skills to help create Human Factors solutions for clients

Communication

By the completion of the Master's degree, students will:

Independently create professional manuscripts and reports

Accurately report analysis of data

Effectively orally communicate HF/E knowledge

Teamwork

By the completion of the Master's degree, students will:

Demonstrate professional team management and organizational skills

Demonstrate collaboration in the production of verbal and manual reports of field knowledge

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 account. 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) Placement Exam (GPE)

Graduate students are required to satisfy the GWAR requirement, which must be completed before advancement to candidacy. ***Students who have previously (1) received a degree from an accredited college or university in the United States; or (2) received a degree from an accredited non-US institution located in a country where English is a primary language of communication; or (3) attained an appropriate score on the analytical writing component of an approved test are exempt from the GPE.*** Students who are exempt will have this noted on their records at the time of admission beginning Fall 2013. Additional information may be found on the following web page: <http://catalog.csulb.edu/content.php?catoid=2&navoid=32#graduation-writing-assessment-requirement-gwar->

4. Advancement to Candidacy

Advancement to Candidacy is the filing of an approved Program (formal request to Advance) by the Graduate Advisor. This request will be made based upon the Program Coursework listed in the CSULB Catalog at the time of program entry to Enrollment Services; it may include additional approved substitution courses. This information will be used to help perform the student's "grad check." After the student completes a minimum of 6 units towards fulfillment of the MSHF degree, and successfully fulfills the GPE 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. CSULB requires master's students to meet with their Graduate Advisor in person to complete this important step towards Candidacy. A student must be advanced to candidacy before the last semester of taking program coursework and prior to filing for a "grad check" (AKA "Request to Graduate").

5. Grad Check AKA Request to Graduate

At least one semester prior to the last semester of regular coursework, students are required to file a Request to Graduate ("grad check") through their MyCSULB Student Center. This will start the process for informing and advising the student of progress made toward completing his or her graduation requirements. Please note that the GPE 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), and may eventually result in dismissal if not corrected in a timely manner. ***There is no "repeat/delete" for graduate students.*** A minimum 3.0 GPA in MSHF program coursework, as set by the student's Advancement to Candidacy, is also required to graduate. Note: Lower Division coursework (100 - 200 level) is not included in the cumulative GPA.

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 use your CSULB email address to correspond with faculty and staff. But also notify the Graduate Advisor of any changes to your personal email address. Do update your home and mailing addresses both via your MyCSULB Student Center and with the department.

Important program information will be disseminated via email and mailing, and also posted on the department web site (www.csulb.edu/psychology). CSULB requires departments to use students' CSULB email addresses. However, the Psychology department will send out email to alumni, after their school email account has expired. Please provide the department with an alternate email contact.

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/administrative probation and disqualification, registration instructions and deadline, and much, much more.

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, 8 upper division courses of Psychology, 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 semester 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 633 Seminar in Perception and Attention
Or
PSY 634 Seminar in Cognition
5. PSY 627 Human Factors' Methods
6. PSY 689 Practicum in Human Factors
7. MAE 508 Systems Engineering and Integration
8. CECS 448 Use Interface Design (*will be replaced with new MSHF course - number TBD*)

And two courses chosen from the following:

- PSY 512 Multivariate Analysis
- PSY 513 Social Network Analysis
- PSY 523 Qualitative Methods and Analysis
- PSY 544 Cognitive Neuroscience
- PSY 635 Seminar on Situation Awareness
- PSY 696 Research Methods
- PSY 697 Directed Research
- DESN 581 Designing for User Experiences
- DESN 583 Data and Technologies of Human Interaction Design
- ENGL 419 Writing in Science and Technology
- STAT 510 Regression Analysis

(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)

Please note: The MSHF Committee will be putting forth a request to change the MSHF Program as listed above. Some of these changes are due to our students no longer having access to some courses (such as CECS 448), to streamline required courses, and to add additional Elective choices. These changes will hopefully be official starting Fall 2021.

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:

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 participate in both preliminary and final orals. The Thesis Chair and the student must be physically present.

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 - please email the membership once formed.

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 this 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: web.csulb.edu/divisions/aa/research/forms/ (Under Compliance). If "piggy-backing" on your Chair's research, it might not be necessary to file with IRB/AWB.

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) **one week prior** to the final orals meeting.

6. Thesis Guidelines Publications

If you are unsure about a project, previous theses are available via an online database (link on department and Thesis Office's web sites). A complete list of 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 Thesis Reviewer has prepared guidelines linked from its web site which should be viewed or downloaded prior to beginning your thesis. This publication, referred to as the *Format Manual for Theses and Dissertations*, has been updated beginning Spring 2019, and 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 Psychology 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.cla.csulb.edu/departments/psychology/newman-lab/

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 (the Spidell Technology Center). These labs are open the same hours as the campus library. Information may be found at: <http://www.csulb.edu/university-library/computer-labs-at-the-university-library>

CSULB Email and Library Accounts

Students can check on their own CSULB “BeachMail” email account and access additional information about BeachMail via the following portal: <http://daf.csulb.edu/email/>

To use PsycINFO and other databases from offsite you must obtain your CSULB Student ID card: <https://www.csulb.edu/49er-shops-at-the-beach/id-card-services> You can also borrow books and media materials, and request materials not available in the CSULB Library through CSU+ or BeachReach (Interlibrary Loan).

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 Research Desk on the first floor of the library, adjacent to the Spidell Technology Center, and also on-line: <https://www.csulb.edu/university-library/help-research>. Students are encouraged to seek help and to inquire about the abstracts that are available for their topic of interest.
- B. Students may check out books for 16 weeks, media materials for 30 days. Books may not be renewed.
- C. Many research databases are available via the Internet for CSULB students, including PsycINFO, PsycARTICLES, and PsycTESTS. Electronic journals may be accessed via these web addresses:
<http://csulb.libguides.com/c.php?g=39125&p=249383>
<http://csulb.libguides.com/databasesbytopic>

3. Department 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 a library of psychological measures available for graduate student research. Many of these are copyrighted and expensive to purchase, but are loaned to students at no cost. Hardcopy versions can be borrowed by filling out a form with a faculty signature. But many are in digital format and can be emailed directly to the student. For more information on PAM loan procedures visit:

<http://www.cla.csulb.edu/departments/psychology/assessment-center/>

For a complete list of available measures, visit:

<http://www.cla.csulb.edu/departments/psychology/wp-content/uploads/2020/07/PAM-Materials-2018.pdf>

5. Student Services

Academic advising through the Bob Murphy Access Center (BMAC), formally known as Disabled Student Services Office: web.csulb.edu/divisions/students/dss/

Personal and health counseling through:

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

Community Clinic for Counseling and Educational Services:

<https://www.csulb.edu/college-of-education/community-clinic-for-counseling-and-educational-services>

Financial assistance via the Office of Financial Aid: web.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.cla.csulb.edu/departments/psychology/pro/>

7. Graduate Studies Resource Center

<https://www.csulb.edu/graduate-studies-resource-center>

Located in the campus library, the GSRC provides graduate school related resources and events related to graduate studies including:

One-on-one advising for current graduate students or students interested in applying to graduate school by appointment request or drop-in basis

Individualized support with applying to graduate programs including writing the statement of purpose, preparing the CV/résumé, securing letters of recommendation, and learning about funding for graduate studies

Graduate writing support for post-baccalaureate students (master's, credential, certificate, or doctoral) seeking one-on-one help for a class paper, thesis/dissertation, research project, or grant proposal

Graduate school-related workshops for all current and prospective grad students

Funding opportunities for student scholarships and travel grants for students to attend academic conferences

Graduate events including the GSRC's annual Graduate Research Conference, Graduate & Professional Schools Fair, and Graduate Writing Institute

Mock interviews for graduate admissions

Short-term laptop loan program for CSULB post-baccalaureate students

Study space for students - all undergraduate and graduate students welcome

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:

<http://www.cla.csulb.edu/departments/psychology/graduate-students/graduate-newsletter/#GAs>

Types of GA Jobs

Each semester the department of Psychology hires approximately 17-20 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 110, 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 other 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 \$8347 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** and the **J. Robert Newman Scholarship**, and determines the **Psychology Distinguished Graduate Students**. (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 Winter 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 or Fall semester.

When nominations are received by the Graduate Advisor, the students' GPAs are checked for eligibility (3.50 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 three Program Committees select one student each to be considered for this award, the names of which are then passed on to the Graduate Committee consisting of three faculty members (one from each of our three graduate programs). The Graduate Committee 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. Five awards were given by the College of Liberal Arts during the 2019 Commencement in which the Psychology department participated.

Gilbert J. Padilla Memorial Award

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

Distinguished Graduate Students Award

Psychology students who are nominated for the Graduate Dean's List will also 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 to go forward to their respective program committees. One thesis is selected to represent each program. The department Graduate Committee reviews these theses 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 MA/MS program committees each may select one to two outstanding incoming student(s) as a J. Robert Newman Scholar. Depending upon the program, selected eligible recipients receive up to \$1000/semester, for a maximum of four semesters, when funding allows.

Boeing Company University Relations Human Factors Graduate Scholarship

Scholarships up to the amount of \$3000 may be awarded, 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 Scholarship Awards program. Applications will be emailed to students when scholarships are available.

CSULB Annual Student Research Competition

Information on the CSULB Annual Student Research Competition may be found at: <http://web.csulb.edu/divisions/aa/research/students/competition/index.html> Psychology students have done well in the past, including first place in 2016 (Behavioral & Social Sciences Category).

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 2016 the chapter has been awarded the prestige of Gold Chapter by the national Human Factors and Ergonomics Society a total of 13 times: in 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017, 2018 and 2019.

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>

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

User Experience Professionals Association
<https://uxpa.org/>

Other Related Professional Organizations

Systems, Man and Cybernetics Society
<http://www.ieeesmc.org/>

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

Institute of Industrial & Systems Engineers
<https://www.iise.org/>

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

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

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

American Society of Safety Professionals
<http://www.assp.org/>

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

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

IX. RECENT INTERN PLACEMENTS FOR MSHF STUDENTS

NASA Ames Human Autonomy Teaming Lab
NASA Dryden Flight Research Center
NASA Jet Propulsion Laboratory
Boeing C-17 Ergonomics Center
Human Factors Consulting Services, Inc

Rockwell-Collins Corp
Dynamic Research Inc.
Battelle Corp
Edwards Air Force Base
Pacific Sciences and Engineering

Lextant Inc.
Google
Sony
Chevron Inc.

X. EMPLOYMENT OPPORTUNITIES FOR THE MSHF GRADUATE

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

Cognitive Effects of Using Eye-Gaze as a Control: A Study to Identify Effects on Visual Perception

Customization: The Path to a Better and More Accessible Web Experience

Disruptions Love Company: Investigating Flow Disruption Clusters in Robotic Surgery

Do Peripheral HUD Warnings Affect Driving Ability?

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

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

Measuring the Effects of a Cognitive Aid in Deep Space Network Operations

Performance and Attentional Abilities of Automobile Drivers with Head-Up and Head-Down Displays

The Relation between Urgency and Distance-over-Speed Bias in Time-to-Contact Estimation

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 offered through the Psychology Department:

Prerequisites

310. Intermediate Statistics (4)
Prerequisites: PSY 100, and 110 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.)
513. Social Network Analysis (3)
This course examines social network theory, research, and analytic methods. Topics covered include centrality, centralization, network topology, social exchange, diffusion and influence, subgroup analysis, and organizational risk. Application of social network knowledge to real-world problems is emphasized.
- 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.)
523. Qualitative Methods and Analysis (3)
Prerequisite: Graduate Student Standing. Overview of qualitative research methods and analysis. Students learn to conduct observations, focus groups and qualitative interviews. Inductive analysis techniques such as content analysis and narrative analysis. Application of these skills in a qualitative evaluation of a real-world program.
527. 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.)

Courses 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.

- 533 Research in Cognition & Learning (3)
 433. 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/ Cognitive Neuroscience (3)
 444. 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.
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.
689. Practicum in Human Factors (3)
 Prerequisites: PSY 627 or consent of the instructor
 Practice of human factors in various industrial, engineering or design settings. Individual research and consultation with industrial or governmental organizations.
696. Research Methods (3)
 Prerequisites: PSY 411/511 or 412/512, PSY 596 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.
697. Directed Research (3)
 Prerequisites: Consent of Graduate Advisor and department. Theoretical and experimental problems in psychology requiring intensive analysis. [See description on next page.]
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 (in multiples of 3 - either 3 per semester or all 6 at once, but **no more** than **6 total**).

DESN

- 581/ Designing for User Experiences (3)
 481. Prerequisites: Graduate student in HXDI program or consent of instructor. Application of theories, research methods, ethics, and design processes of UX (user experience) design. Students will research, develop, and test UX designs. Design strategies will be discussed as they apply to physical, virtual, and hybrid solutions.
 Letter grade only (A-F). Course requirements for technology hardware and software are available on the department web site. (Online, Hybrid or 6 hours laboratory).

DESN

583/ Data and Technologies of Human Interaction Design (3)

483. Prerequisite: Graduate student in HXDI program or consent of instructor. Technology skills for non-programmers by managing and processing complex visual information. Students will synthesize quantitative and qualitative data through a series of workshops, and develop digital research skills and technology to enhance human-centered, technology-augmented design. Letter grade only (A-F). Course requirements for technology hardware and software are available on the department web site. (3 hours seminar).

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)

408. 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.)

STAT

510/ Regression Analysis

410. Prerequisite: STAT 381. (Undergraduates enroll in STAT 410; graduates enroll in STAT 510.)

Simple linear regression: estimation and inference, prediction, analysis of residuals, detection of outliers, use of transformations. Multiple linear regression: influence diagnostics, multi-collinearity, selection of variables, simultaneous estimation and inference, validation techniques. Statistical software for data analysis used. Letter grade only (A-F). (Lecture 3 hrs.)

**CSULB requires that a master’s student’s program coursework be at least 50% “graduate experience” - that is, courses comprised solely, or almost solely, of post-bac students. The following courses qualify:

- | | |
|---------|---------|
| PSY 513 | PSY 634 |
| PSY 523 | PSY 689 |
| PSY 527 | PSY 696 |
| PSY 627 | PSY 697 |
| PSY 633 | PSY 698 |

MS Human Factors Elective Project (PSY 697)

Objective: The research project is designed to ensure that students can design or develop, execute, analyze and write up a research project 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. In addition, the written report is much shorter than a thesis.

Credit: The project credit is obtained through PSY 697 - Directed Research. The project should be completed in a single semester and students should sign up for 3 units of credit. (Three units is required for course credit as a MSHF Program Elective.)

Experiment: The project will be assigned by the faculty supervisor

Grade: Your grade will depend on the quality of your work on the project and the quality of the written report. The specific grading criteria will be specified by the faculty supervisor on a PSY 697 contract that is approved by the Department Chair.

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 GVAR/GPE requirement
by end of first semester

- _____ Advancement to Candidacy
second or third semester

- _____ Complete Thesis Project (*refer to online 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 Request to Graduate (AKA “Grad Check”)
deadline: 10/15 for following Spring or Summer graduation
3/1 for following Fall or Winter graduation

- _____ 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 2018)

COURSE	TITLE	UNITS	Completed		SEM/YEAR TO BE TAKEN
			Grade	Sem/Year	
The following eight courses:					
PSY 511	Statistical Design & Analysis	3			
PSY 518	Computer Applications in Psych	3			
PSY 527	Human Factors	3			
PSY 533 <i>or</i> PSY 633 <i>or</i> PSY 634	Research in Cognition & Learning Seminar in Perception & Attention Seminar in Cognition				
PSY 627	Human Factors' Methods	3			
PSY 689	Practicum in Human Factors	3			
MAE 508	Systems Engineering/Integration	3			
CECS 448	User Interface Design	3			(not available)
Two courses chosen from the following:					
PSY 512	Multivariate Statistical Analysis				
PSY 544	Cognitive Neuroscience				
PSY 635	Seminar on Situation Awareness				
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			

Name: _____ CSULB ID# _____

REQUIREMENTS: MS-HUMAN FACTORS DEGREE (TENTATIVE FOR FALL 2021)

COURSE	TITLE	UNITS	Completed		SEM/YEAR TO BE TAKEN
			Grade	Sem/Year	
The following eight courses:					
PSY 511	Statistical Design & Analysis				
PSY 518	Computer Applications in Psych				
PSY 527	Human Factors				
PSY 627	Human Factors' Methods				
PSY 633	Seminar in Perception & Attention				
PSY 634	Seminar in Cognition				
PSY 689	Practicum in Human Factors				
MAE 508	Systems Engineering & Integration				
Two courses chosen from the following:					
PSY 512	Multivariate Statistical Analysis				
PSY 513	Social Network Analysis				
PSY 523	Qualitative Methods and Analysis				
PSY 544	Cognitive Neuroscience				
PSY 635	Seminar on Situation Awareness				
PSY 696	Research Methods				
PSY 697	Directed Research				
DESN 581	Designing for User Experiences				
DESN 583	Data and Tech of Human Interaction				
ENGL 419	Writing in Science and Technology				
STAT 510	Regression Analysis				
Six units of Thesis (PSY 698):					
PSY 698	Thesis	6			
TOTAL UNITS		36			

GRADUATE PETITION FOR EXCEPTION FORM

This form is required for students requesting an exception (i.e., substitution course) to the Psychology Department's curriculum requirements for the Master's in Psychological Research (MAPR), Master's in Human Factors (MSHF), or Master's in Industrial/Organizational (MSIO). The Program Committee approves or denies graduate Petitions for Exception.

- In a single email, submit all materials to the Graduate Advisor, Diane Roe (Diane.Roe@csulb.edu)
- Petitions must be submitted **prior to the start of the semester** that the requested Course will be taken; **petitions for the current semester will not be accepted after the first day of instruction** for that semester.

Your emailed petition packet should include the following:

- Completed Petition for Exception form (this form)
- Letter of explanation – ½ - 1 page explanation detailing the reason for your request, why the course should meet the requirement for substitution or exception, and how this Course will benefit your educational or professional goals.
- Official catalogue description of requested course
- Syllabus for the Course – must be the actual syllabus (includes readings and assignments), and the syllabus must be current, as provided by the instructor
- Statement from faculty mentor supporting your request (brief email is acceptable)
- Permission from instructor of requested course (brief email is acceptable)
- If requesting a 400-level course, petition must include a statement from the instructor detailing additional requirements for a graduate-level student

Date submitted: ___/___/_____ Student's Graduate Program: ___ MAPR ___ MSHF ___ MSIO

Student information:

Student ID: _____
Student Name: _____
Student Email: _____
If MAPR student, name of Faculty Mentor: _____

Requested Course information (course student wishes to take):

Course Number (e.g., PSY 515): _____
Course Title: _____
Course Department: _____
Course Instructor: _____
Semester to be taken: ___ Fall ___ Spring ___ Summer Year: _____

Reason for Petition:

- Program requirement – I request to have the above non-required course fulfill a program requirement. Required course to be replaced (e.g., PSY 511/512): _____
- Elective requirement – I request to take the above non-Psychology Department course as an Elective.
- Other: _____

Committee Use Only

Date Approved: ___/___/_____ Graduate Advisor's Signature: _____