

Master of Science in Applied Experimental and Engineering Psychology
Rochester Institute of Technology, Department of Psychology

Graduate Student Handbook

1. Introduction

The M.Sc. Program in Applied Experimental and Engineering Psychology emphasizes human behavior and performance within human-machine systems. Engineering psychology examines human capabilities and limitations to sense, perceive, store, and process information and how these human factors impact human interactions with technology. This knowledge is applied to the design, use, and maintenance of human-machine systems. Students will be trained both in research methods of experimental psychology and application of the results to contemporary problems in the industry.

Faculty from the Department of Psychology, the Department of Industrial & Systems Engineering and the Department of Information Technology all contribute to the teaching of courses in the program. The mission of RIT is to provide technology-based educational programs and to vigorously pursue emerging careers by developing new programs in response to changing technology. The RIT M.Sc. in Applied Experimental and Engineering Psychology prepares students to function as effective engineering psychologists in industrial, governmental, or consulting organizations. The program also provides a foundation for further advanced academic study in Engineering Psychology, Human Factors, or Experimental Psychology. Teaching and research assistantships are available on a competitive basis.

2. Admission Requirements:

Applicants to this program are expected to have 20 quarter credit hours (or 15 semester hours) of course work in undergraduate psychology or a related field (e.g., engineering, computer science, information technology), including one course in experimental psychology and another in statistics.

Admission decisions will be based on:

- (1) a minimum GPA of 3.0 for undergraduate work,
- (2) Graduate Record Examination scores (within the last five years),
- (3) two letters of reference from professors or supervisors,
- (4) a biographical statement describing the applicant's experience and program goals,
- (5) a completed application for graduate admission to RIT.

3. Curriculum

3.1. Core courses

3.1.1. Required Experimental Core Courses	Qtr. Cr. Hrs.
0514-784 Graduate Statistics	4
0514-785 Advanced Perception	4
0514-786 Research Methodology (or 4002-726)	4
0514-787 Advanced Cognition	4

3.1.2. Required Engineering Psychology Courses

0514-788 Topics in Engineering Psychology	4
4004-745 Foundations of Human-Computer Interaction	4
0303-731 Advanced Topics: Ergonomics/Human Factors	4
0303-734 Systems Safety Engineering	4

3.2. Elective courses: Students select two from the following; prerequisites are in brackets:

0514-xxx Independent Study (approval required)
4004-748 Usability Engineering (4004-745 and 4004-741)
4004-749 Usability Testing (4004-748 and Statistics)
4004-755 Advanced Topics in HCI (4004-745)
4004-757 Graphical Elements of the User Experience
4004-774 Eye Tracking Theory (4004-745)
0303-530 Engineering Design
0303-732 Biomechanics (0304-331, 0304-332, 0303-730 or equivalent)
2014-701 Introduction to Computer Graphics (permission of the instructor required)
2014-717 Authoring Multimedia (permission of the instructor required)
2014-723 Graphical User Interface

Computer Programming (any sequence from IT or CS) – strongly recommended

3.3. Required Thesis Credits

0514-889 Thesis Proposal	4
0514-890 Thesis	4

3.4. Co-op option: The MS degree program in Applied Experimental and Engineering Psychology has an optional cooperative education component. It is generally taken in the summer quarter of the first year of the program. The goal of co-op education is to provide for students the experiential learning that integrates with classroom education. It allows students to apply psychological principles to problems in a variety of work environments. Co-op education may be taken at any business or industrial setting.

4. Thesis - General Requirements

- 4.1. The research must add to the existing body of knowledge on the given subject. That is, the thesis research must address a question that has not been answered before or extend previous findings in a meaningful way. The student, thesis committee and faculty advisor will ensure these requirements are met during the proposal process.
- 4.2. The research must be empirical. That is, the research must be based on data, which are properly analyzed and interpreted. The data may come from a variety of applicable sources: the student may run an experiment and collect data; the student may analyze existing data to answer novel research questions about them; or the research may deal with metadata.
- 4.3. Because the thesis will be in the field of engineering psychology, it is imperative that the topic has a clearly articulated application. Applied and basic research lie at the opposite ends of a continuum allowing much flexibility in determination of the scope and specific topic of the thesis. If the thesis topic lies towards the basic end of the continuum, some indication of practical applications must be conveyed; conversely, applied research should be based on theory and make a contribution to advancing our knowledge about the underlying principles and theoretical constructs of human behavior and performance.
- 4.4. The scope and the depth of analysis, and the significance of the topic must be sufficient that publication of the results in a peer-reviewed scientific journal or conference proceedings is warranted. Publication of the research is not required for the degree, but is *strongly* encouraged.

5. Thesis Proposal

- 5.1. Before registering for graduate thesis credits, a graduate thesis committee will be formed (see Section 6 for details) and a thesis proposal must be presented and accepted by the committee (see Section 7, *Thesis Timeline* below for more details). The main purpose of the thesis proposal is to define the scope of the thesis project and obtain formal approval for the topic and research plan from the thesis committee.
- 5.2. The thesis proposal will have been developed collaboratively between the student and the advisor. The proposal is due at the end of the time when students sign up for Thesis Proposal, normally during the 3rd quarter in the program.
- 5.3. The thesis proposal must contain the following elements:
 - (1) *The thesis title, the name of the thesis faculty advisor, and the names of the faculty members that participate in the thesis committee as readers.* Committee members indicate their approval of the thesis topic by signing the cover page.
 - (2) *A review of relevant literature.* The literature review serves two distinct purposes. First, it ensures that the research is indeed original by searching the existing body of literature for similar studies conducted in the past. Second, review of the relevant literature will allow the candidates to amass sufficient knowledge to be able to carry out the empirical part of the thesis research.
 - (3) *Statement of thesis objectives and significance of the research.* A brief description of the project and a clear statement of the purpose of the research and the project deliverables, as well as a demonstration of how these follow from or are related to the existing body of knowledge as revealed by the literature review.

(4) *A research plan, including a proposed timeline of major research activities, and a detailed description of the planned research method.* The method must include the following:

- (a) Participants: Description of the procedures planned for finding and recruiting subjects or obtaining pre-existing data or materials.
- (b) Apparatus/materials: Description of the experimental apparatus or other materials; here the student should also indicate needs for equipment or software or other resources necessary for the research.
- (c) Procedure: Detailed description of the experimental procedures.
In some cases a separate 'Design' section may be included, comprising a detailed description of the experimental design or the analyses of pre-existing data; this section must allow for assessment of the validity of the proposed research.

6. Thesis Committee

- 6.1. The thesis committee comprises three members; a committee chair and two readers. Co-advising is possible.
- 6.2. The committee chair shall be the student's thesis advisor, who will usually be a full-time faculty member in the Department of Psychology. The student will choose a thesis advisor based upon the match between the student's thesis topic and faculty expertise. The adviser will be responsible for the planning of the thesis project and day-to-day guidance and supervision of the student through the experimental design and setup, data collection and analysis, and writing phases of the thesis.
- 6.3. The two readers shall be formally invited to the student's thesis committee by the committee chair (thesis adviser). The readers will be selected based on consultation between the student and the potential thesis adviser. The primary role of the readers shall be to ensure that the thesis meets the requirements as stated above and provide constructive criticism and commentary. The readers must approve the thesis proposal as well as the final thesis.
- 6.4. At least one of the thesis committee members must be from the Department of Psychology.

7. Thesis Timeline

- 7.1. The thesis requires a minimum of four credit hours.
- 7.2. The program can be completed in four quarters, excluding summer, with the thesis research occupying a significant proportion of that time.
- 7.3. The first step in the thesis is completion of the thesis proposal. The proposal must be submitted to the Department of Psychology in writing and a public oral presentation will be made to an audience comprising Psychology Faculty, Students and other interested parties.
- 7.4. Final (oral) defense of the thesis will be public. A 30-minute public presentation of the thesis will be followed by the oral defense involving the student and the Thesis Committee. After any required revisions to the thesis, the Thesis Committee will indicate approval of the thesis by signing the final document.

8. Procedures

- 8.1. Application procedure. Admission requirements are listed in Section 2. The RIT graduate application is available at: http://www.rit.edu/emcs/ptgrad/grad_admission.html
- 8.2. Maintenance of graduate standing. The student must maintain a minimum graduate GPA of 3.0 and be enrolled at least part-time in the program to be considered a graduate student in good standing. Continuous registration is required, and it is the student's responsibility to ensure good progress through the coursework, proposal and thesis.
- 8.3. Once formal coursework has been completed, students must show adequate progress towards the completion of their thesis to remain enrolled. Any student who fails to maintain adequate progress towards the completion of a thesis and is not granted a leave of absence may at any time be terminated from the program on the recommendation of the thesis committee and the Graduate Coordinator or Department Chair. The Master's thesis *must* be started before or during the Fifth Quarter the student is in the program, and thus the Proposal must be completed by the end of the 4th quarter (not including Summer quarter).
- 8.4. The thesis committee and the student have obligations related to the smooth completion of the MS. The following guidelines relate to proposal and thesis completion:
 - (1) The committee will be given a *minimum* of one week to read and review the proposal before the date the preliminary oral can be officially announced. If a committee member cannot meet this deadline, she/he must inform the student and the Thesis Chair immediately and negotiate an alternative acceptable to all parties.
 - (2) The thesis committee will be given a *minimum* of two weeks to read and review the thesis draft before the date a final oral is officially announced. The thesis defense will be scheduled no *less* than two weeks after the committee agrees a student is ready to defend. If a committee member cannot meet these deadlines she/he must inform the student and the Thesis Chair immediately, and negotiate an alternative acceptable to all parties. The students must ensure they observe these time intervals if they are attempting to finish work before the end of a given quarter.
 - (3) If substantive changes to the thesis are required, committee members (including the advisor) should work to ensure the student is aware of the issues, and provide written feedback to aid in thesis revision. Substantive changes include (but are not limited to): extensive new data analyses, extensive alternative data analyses, further experimentation, and extensive alternative interpretations. It is the student's responsibility to provide the committee members with a final draft of the thesis prior to scheduling final orals.
- 8.5. Time limits. The student must successfully complete all required courses within seven years of the time of initial registration for graduate study. Note, the starting date of *any* course work counted towards the degree constitutes the beginning of study, so transfer credit should be considered carefully.
- 8.6. Interruption of study. Existing RIT regulations concerning leave of absence apply. A leave of absence may be requested by a student in preference to withdrawal from RIT.
- 8.7. Students must be registered for Continuation of Thesis as a minimum during the quarter they complete the oral defense of the thesis. This does not supersede the requirement of continuous enrollment to be considered to be in good standing.