**Introduction to Human Factors Psychology**

**Course #: Psychology 340**

**Fall 2019**

Instructor: Yi-Ching Lee, Ph.D. Office Hours: Wednesdays 9:00-10:15 AM or by appt

Office: David King Hall 2060 Class Time: Monday/Wednesday 10:30-11:45 AM

Email: ylee65@gmu.edu Class Location: Nguyen Engineering Building 1109

(include Psy340 in the subject line when emailing me)

Mason uses electronic mail to provide official information to students. I will use the Mason e-mail and Blackboard for class announcements, cancelation, reading assignments, and lecture slides. You are responsible for the content of university communication sent to your Mason e-mail account and are required to activate that account and check it regularly

**Last day to add: Sept. 3; Last day to drop: Sept. 27; Selective withdrawal period: Sept. 30 – Oct. 25; Last day of class: Dec. 7**

**Course Description and Objectives**

Human Factors is a specialization of psychology that studies how humans interact with systems and technology, and how those interactions may be made better (e.g., safe, efficient, easy to learn, intuitive, enjoyable, etc.). Human Factors psychologists/engineers conduct research and work at companies that produce technology, but they also work for media companies, medical device manufacturers, the transportation sector (automotive and rail), government organizations, etc. This course is designed to introduce you to some of these areas of Human Factors by presenting information on three ‘core’ course topics: (1) historical events in the development of Human Factors as a discipline, (2) the cognitive ‘attributes’ of humans, and (3) an introduction to product design and evaluation.

**Course Structure and Reading Assignments**

Before you decide to continue in this course, there are two aspects about the course you should consider. First, Human Factors is highly interdisciplinary in nature, and because of this, we will be reading from a variety of original sources (and not a textbook). This means that assigned readings will include experimental articles on psychology, book chapters, reports, and other original source material. Reading original material (which is typically free) keep costs down for students, and allows me to select reading assignments that are as interesting, relevant, and on the cutting-edge of science as possible but they can also be more challenging to read than a traditional textbook. If you don’t like reading, my advice is that you consider dropping this course.

Second, this course will require your active participation and working in groups. There will be activities completed both inside and outside of class. These activities provide experience learning about, and in some cases applying, human factors principles and research methodology to evaluate contemporary products and systems and to investigate accidents. Because of the active nature of the course, some students find that it feels different than some of their past courses. While the course isn’t necessarily more difficult than other courses, it may require more of your time outside of class. If you don’t have much time for external activities, my advice is that you consider dropping this course.

**Course Assignments and Grading**

1. Quiz (50 points). There will be 5 quizzes total. See the materials covered in the course schedule. You will take them on Blackboard. While the quizzes are open-book, open-note, you will still need to study my lecture slides and read the assigned reading materials (posted on Blackboard) first, as each quiz needs to be finished within an hour.
2. Accident investigations and presentation (100 points). Each group will be assigned to investigate an accident and then present the investigation to the class on your scheduled date. I will provide enough materials to get you started and you will find additional information for your investigation. You will be asked to utilize library resources and Internet searches.
3. Project presentation (100 points). I will provide a few datasets for you to choose. Each group will develop your own research questions and an analytic plan to process and analyze the data, and present the results to the class.
4. Project report (100 points). Upon completion of the project presentation, each group will also write up a report to document the research questions, relevant literature/human factors theories/principles, analytic plans, results, and conclusions. Report template and specific requirements will be provided.
5. Participation (50 points). These points come from asking questions during accident investigation presentations and project presentations as well as during lectures and in-class activities.

NOTE: No extra credit will be given in this course. Points will be updated on Blackboard regularly.

C*omputing Your Final Grade*

Your letter grade can be calculated by dividing the number of points you earn by the total number of points possible. Please do not approach me about bending the class rules to make personal exceptions about your grade: I take fair and equitable treatment of all students very seriously, and every student will be subject to the same grading standards. The chart below should be useful for determining your course standings near the end of the semester:

|  |  |  |  |
| --- | --- | --- | --- |
| Point Source | Maximum Score | Determining Final Letter Grade | |
| Quiz | 50 points | A+ 100-97% | >=388 points |
| Accident investigation | 100 points | A 96-93% | 372-387 points |
| Project presentation | 100 points | A- 92-90% | 360-371 |
| Project report | 100 points | B+ 89-87% | 348-359 |
| Participation | 50 points | B 86-83% | 332-347 |
|  | Total 400 points | B- 82-80% | 320-331 |
|  |  | C+ 79-77% | 308-319 |
|  |  | C 76-73% | 292-307 |
|  |  | C- 72-70% | 280-291 |
|  |  | D+ 69-67% | 268-279 |
|  |  | D 66-60% | 240-267 |
|  |  | F <59% | <=239 |

**Attendance**

Attendance is required in this class without exception. You will not earn points for the participation part of the grade if you are absent. If you know in advance that you will miss a class, you must make arrangements with me in advance or provide university-approved documentation of an unexcused absence. This is especially critical if you are scheduled to present that day. If you do miss your scheduled presentation, you will need to present the investigation/project to me separately.

Please arrive on time for class. Being late disrupts other students who are on time.

If you believe you will miss lots of class, please consider dropping this course and taking the on-line version in the Spring 2020.

**Class Cancellation Policy**

If a class needs to be cancelled (due to weather or other unforeseeable reasons), I will use the Mason e-mail and Blackboard for such announcement. I will provide reading materials or activities for you to complete during that class time. We will not reschedule that class.

**GMU Honor Code**

George Mason University has an Honor Code that each student accepts as a condition of enrollment. This code is consistent with APA’s ethical principles for working professionals, and it is required that each student adhere to the Honor Code. For this course, group studying is expected and encouraged, but all students are required to produce original work on all assignments unless otherwise noted. Plagiarism, academic dishonesty, and other failures to follow the GMU honor code will result in disciplinary actions that include receiving a failing grade for this course, along with referral to the GMU Honor Committee for further review and documentation of the offense. A lack of knowledge about what constitutes a violation of the honor code is not a defense against possible violations; it is your responsibility to review and adhere to this code. If you have ANY questions about plagiarism or the honor code, I encourage students to review the code for themselves at: <https://oai.gmu.edu/mason-honor-code/full-honor-code-document/>

**Performing at Your Best**

*Learning Accommodations:* It is my policy, as well as the university’s, to accommodate all students with special needs and disabilities that might affect their learning, course participation, or assignment completion. If you are a student with a special need and you need academic accommodations, please speak with me about making appropriate accommodations and please contact the Disability Resource Center (DRC) at 703-993-2474, or online at http://ods.gmu.edu/

*Stress and Academics:* GMU is committed to helping students maintain their emotional well-being through the GMU Counseling and Psychological Services (CAPS) office, located online at: http://caps.gmu.edu/ and by telephone at: 703-993-2380. CAPS services are free to Mason students, and include one-on-one stress and anxiety counseling, and Academic Skills Workshops that can teach students how to ‘study smarter’ and make the most of your higher education.

*Improving Academic Writing:* Strong writing is a skill that is learned through guided instruction and practice. Strong writing skills are likely to be a benefit for students pursuing academic or industry careers in most domains. Students who seek to improve their academic writing are encouraged to do so by visiting the GMU Writing Center. Information can be found online at: <http://writingcenter.gmu.edu/>

*Cell phone and social media policy:* Talking and texting on electronic devices and engaging in social media and games are prohibited. You will be asked to leave if you disrupt the class.

**Course Schedule:**

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Date | Course schedule | Important Notes |
| 1 | Aug 26 | Overview of the course |  |
|  | Aug 28 | History of HF |  |
| 2 | Sept 2 | **No class – Labor Day** |  |
|  | Sept 4 | How/why to investigate HF accidents? | **Groups identified for accident investigation** |
| 3 | Sept 9 | HF theories and principles 1 | Quiz 1 |
|  | Sept 11 | HF theories and principles 2 |  |
| 4 | Sept 16 | Accident investigation and presentation |  |
|  | Sept 18 | HF theories and principles 3 |  |
| 5 | Sept 23 | Accident investigation and presentation | Quiz 2 |
|  | Sept 25 | Accident investigation and presentation |  |
| 6 | Sept 30 | Product design 1 |  |
|  | Oct 2 | Product design 2 |  |
| 7 | Oct 7 | Accident investigation and presentation | Quiz 3 |
|  | Oct 9 | Accident investigation and presentation |  |
| 8 | Oct 14 | **No class – Columbus Day** |  |
|  | Oct 16 | Research methods 1 |  |
| 9 | Oct 21 | Research methods 2 |  |
|  | Oct 23 | Project discussion | Quiz 4; Groups identified for project |
| 10 | Oct 28 | Catch-up day – project discussion | How to come up with research questions? |
|  | Oct 30 | HF in transportation |  |
| 11 | Nov 4 | HF in aerospace systems |  |
|  | Nov 6 | HF in health care systems |  |
| 12 | Nov 11 | Catch-up day – project discussion | How to find and review literature? |
|  | Nov 13 | HF in HCI |  |
| 13 | Nov 18 | HF in “smart” systems | Quiz 5 |
|  | Nov 20 | HF career opportunities |  |
| 14 | Nov 25 | Catch-up day – project discussion | How to analyze data? |
|  | Nov 27 | **No class – Thanksgiving** |  |
| 15 | Dec 2 | Project presentations |  |
|  | Dec 4 | Project presentations |  |
| 16 | Dec 11 | **Project report due on Blackboard** |  |

\*Note: this schedule is subject to change.