PSYC 734, Section 002– Human Factors in the Medical Domain

**Offered:** Fall 2012  
**Time/Place:** Robinson A125 on Tuesdays 1:30-4:10  
**Instructor:** Deborah A. Boehm-Davis  
**Co-Instructor:** Nicole Werner  
**Instructor Office Location:** C100 College Hall  
**Instructor Office Phone:** 703-993-8735  
**Instructor email:** dbdavis@gmu.edu  
**Instructor Office Hours:** After class or by appointment (call 3-8720 or email to schedule)

**BACKGROUND INFORMATION**

**Catalog Description:** Emphasizes current research and application of human factors, ergonomics, applied cognition, and applied perception.

**Course Objectives/Goals:** The objective of this class is to acquaint you with research on applications of human factors in the medical domain. During the semester, you should become familiar with research in the aviation domain that provided a foundation for work in the medical domain, seminal work in medicine, and current research in the medical domain. By the end of the semester, you should be competent in reading, interpreting, and evaluating human factors research across the medical domain.

**Approach:** The class will be divided into sections describing different areas where human factors expertise has been applied in medical settings. As each area is introduced, seminal work in related domains, such as aviation, will be read and discussed. This will be followed with readings drawn from the recent/current medical human factors literature.

**Class structure:** This class is structured as a seminar. Each week, students will be assigned a set of readings; questions raised by the readings must be posted to the class Blackboard site. One student will be assigned to facilitate discussion for each article to be discussed.

**Course Requirements/Grading:** Each student must complete the readings and submit questions on a weekly basis using Blackboard. Students must also lead discussions of the readings, based on their own reading of the article, and the comments/questions submitted by other students in the class. Students are expected to contribute thoughtfully to classroom discussions. Students will be evaluated on a 3-point scale for questions, class participation, and discussions led. No points will be awarded if the student fails to post questions/participate at all/lead a discussion for which they were assigned. Students who provide deep, thoughtful questions, discussions, or participation will receive two points for that activity. The percentage of total points possible will be calculated at the end of the semester to provide a final percentage for each area evaluated.

In addition, students will be required to submit two papers.

The first paper will be an analysis of a case study. This report will be no more than 5 pages, double spaced, including references, and it will provide an analysis of some sort of the case study (e.g., a root cause analysis, an analysis of the device interface, human factors considerations that may have led to
the incident). This paper will be due no later than November 13. Papers submitted late will be subject to a penalty on the paper’s grade. Papers will be graded on a 100 point scale.

The second (final) paper should be no more than 15 pages, double spaced, including references. This paper may either be a more detailed literature review of a topic introduced in the class or of a related topic. An alternative would be to write a practitioner evaluation report. For example, you could evaluate a medical device for usability and write a usability report that could be used by a physician, hospital, caregiver or patient in deciding whether to purchase a device or you could evaluate a set of devices that are all designed to be used for the same purpose and provide a usability comparison. You could also do an observational study or evaluation of a device or a procedure used in a medical, hospital, or home setting. All paper topics must be approved by the instructor. An abstract of no more than a single page should be provided to the instructor no later than October 2. Final papers will be due no later than December 4. Papers submitted late will be subject to a penalty on the paper’s grade. Papers will be graded on a 100 point scale.

There is no final exam in this class; however, the class will meet during the scheduled exam time to make up for the class missed during the HFES meeting.

Grades will be based on:
- Questions/comments submitted: 15%
- Class participation: 10%
- Discussions led: 5%
- Case study paper: 20%
- Final paper: 50%

Final grades will be assigned using a curve based on the final distribution of points earned.

**TENTATIVE LISTING OF CLASS MEETINGS AND TOPICS**

**NOTE ABOUT READINGS:** Journal articles should be available through the Mason Library’s electronic journal system. The National Academy Press book is available for free electronically if you register with the NAS. You will need to purchase the Gwande book (for week 13). Specific readings may change over the course of the semester.

**Week 1: August 28:**


**Week 2: September 4: Human Factors in Health Care**


**Week 3: September 11: A Systems Approach**


**Week 4: September 18: Error Analysis and Prevention**


**Week 5: September 25: Macroergonomics**


**Week 6: October 2: Teamwork**


**Week 7: October 9**
- NO CLASS: Monday classes meet today due to Columbus Day Holiday

**Week 8: October 16: Team Training**


**Week 9: October 23**
- NO CLASS due to Human Factors & Ergonomics Conference

**Week 10: October 30: Safety Culture**


**Week 11: November 6: Medical Devices**


**Week 12: November 13: Alarms/Displays**


**Week 13: November 20: Checklists**


**Week 14: November 27: Decision Making**


**Week 15: December 4: Interruptions & Distractions**


**Week 16: December 11 (Reading Day) OR December 18 (Final Exam Day): Health IT & Wrapping Things Up**


**ADDITIONAL INFORMATION**

**Academic Integrity/University Honor Policy.**

GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else’s work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and
clarification. The instructor for this course reserves the right to enter a failing grade to any student found guilty of an honor code violation.

**Official Communications**
Students must use their Mason email accounts—either the existing “MEMO” system or the new “MASONLIVE” account to receive important University information, including messages related to this class. Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their mason e-mail account, and are required to activate that account and check it regularly." See [http://masonlive.gmu.edu](http://masonlive.gmu.edu) for more information.

**Disabilities**
If you are a student with disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 709-993-2474. All academic accommodations must be arranged through that office ([http://ods.gmu.edu](http://ods.gmu.edu)).

**Add and Drop Deadlines**
- Last day to add:  September 4
- Last day to drop:   September 28

**OTHER USEFUL CAMPUS RESOURCES**

**Writing Center:** A114 Robinson Hall; (703) 993-1200; [http://writingcenter.gmu.edu](http://writingcenter.gmu.edu)

**University Libraries:** “Ask a Librarian” [http://library.gmu.edu/mudge/IM/IMRef.html](http://library.gmu.edu/mudge/IM/IMRef.html)

**Counseling and Psychological Services (CAPS):** (703) 993-2380; [http://caps.gmu.edu](http://caps.gmu.edu)

**University Policies**
The University Catalog, [http://catalog.gmu.edu](http://catalog.gmu.edu), is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at [http://universitypolicy.gmu.edu/](http://universitypolicy.gmu.edu/). All members of the university community are responsible for knowing and following established policies.