Course: NURS 647 Human Factors in Health Information Technology

Course Credit: 3 units

Course Delivery: Online

Prerequisites: Enrollment in a graduate program at the University of Arizona or by permission of the instructor.

Course Faculty: Jane M. Carrington, PhD, RN
Assistant Professor, College of Nursing
Room 437
Phone: 520-626-3071
Email: janec@email.arizona.edu
Office hrs: By appointment, available face to face, phone, Skype

Course Description:

This course is designed to describe the role of human factors in the design, analysis and evaluation of health information technology. The interaction between the human and the machine will be described as background to which the health information technology fits and reshapes the completion of tasks and the extent to which performance can be supported across settings. Students will begin with a focus on elements of human factors that influence performance, learn approaches to design and analysis that account for human factors and evaluate dimensions of usability and user experience applied to Health Information Technology (HIT).

Expected Individual Student Learning Outcomes:

Upon completion of the course, the student will be able to:

1. Compare and contrast theories used to inform design, analysis and evaluation of Human Factors in HIT for task completion.
2. Using principles from cognitive science, demonstrate theoretical and operational approaches to model human activities for the purpose of human-machine interaction.
3. Explore and apply the role of individual human characteristics and HIT design on reliable task performance, safety and quality in clinical environments.
4. Analyze the role of authority, hierarchy and organizational automation in a Health Information Technology application to support clinical work.
5. Evaluate HIT designs and applications for customization within cultures and systems and mitigation strategies for unintended consequences of HIT.
6. Explore approaches to study and improve usability and user experience with HIT.

Approved by PhD Committee December 18, 2013
Revised and Updated by Carrington 2015
Outcome Assessments:

Three approaches will be used to assess student outcomes and will be described in more detail in the modules and syllabus.

- **Participation in online discussions:** Throughout the semester, discussions will be assigned. When assigned, specifics for discussion open and close date and time will be provided along with the topic/questions to focus responses.

- **Individual assignments:** Throughout the semester, everyone will submit individual assignments. Each will be valued a certain amount towards the final grade for this course. “Individual assignment” means that assignment is developed and submitted as your own individual work.

- **Social Networking:** Throughout the semester, Twitter will be used to support leadership and networking. Specific topics and goals for tweeting will be provided with each assignment.

Course Schedule and Evaluation Items:

<table>
<thead>
<tr>
<th>Dates</th>
<th>Modules</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 24th-August 27th, 2015</td>
<td>Introduction</td>
<td>Ice-breaker, introductions</td>
</tr>
</tbody>
</table>
| August 24th-Sept 20th, 2015   | Analysis | 1. Definitions  
2. Theories of human factors  
3. Application of human factors to Health Information Technology (HIT)  
4. Application to HIT: Change in real time, performance, and authority |
| September 21st-October 18th, 2014 | Design | 1. Application of human factors to decision-making  
2. Work (ergonomics), systems  
3. Cognitive factors |
2. Accommodating and studying humanness (lack of predictability, fatigue, error)  
3. Usability evaluation  
4. Usability relevance |
| November 16th-December 9th, 2015 | Final Projects | 1. Reflection  
2. Final paper  
3. Final presentation |
Evaluation of Modules:

Assignments/Activities/Discussion by Module with their Value:

<table>
<thead>
<tr>
<th>Module</th>
<th>Assignments</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1: Analysis</td>
<td>Synthesis Discussion</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Twitter per week</td>
<td>20 (5pts x 4)</td>
</tr>
<tr>
<td></td>
<td>Analysis Paper</td>
<td>25</td>
</tr>
<tr>
<td>Module 2: Design</td>
<td>Synthesis Discussion</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Twitter</td>
<td>20 (5pts x 4)</td>
</tr>
<tr>
<td></td>
<td>Design Paper</td>
<td>25</td>
</tr>
<tr>
<td>Module 3: Evaluation</td>
<td>Synthesis Discussion</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Twitter</td>
<td>20 (5pts x 4)</td>
</tr>
<tr>
<td></td>
<td>Evaluation Paper</td>
<td>25</td>
</tr>
<tr>
<td>Final Projects</td>
<td>Reflection Paper</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Final Paper</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Final Presentation</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>275</td>
</tr>
</tbody>
</table>

During university holidays, D2L is available however, your participation is not expected, nor are assignments due these dates:
September 7, 2015: Labor Day, no classes
November 11, 2015: Veterans Day, no classes
November 26th-November 29th, 2015: Thanksgiving recess, no classes

Value and Percentage of Evidence Towards Meeting Objectives:

<table>
<thead>
<tr>
<th>Module</th>
<th>Assignments</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1: Analysis</td>
<td>Synthesis Discussion</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Twitter</td>
<td>20</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Analysis Paper</td>
<td>25</td>
<td>10%</td>
</tr>
<tr>
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<td>Synthesis Discussion</td>
<td>20</td>
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<tr>
<td>Total</td>
<td></td>
<td>275</td>
<td>100%</td>
</tr>
</tbody>
</table>

Required Book:
ISBN: 978-0-7546-7580-8
Grade Policies
Grades will be assigned using the following scale:
90-100% = A
80-89% = B
70-79% = C
60-69% = D
Below 60% = E

Necessary Course Tools:
1. Computer and access to internet
2. Twitter account
3. Required text (see above)

Other Required Readings
Additional readings assigned per module.

Other Policies, Rules and Regulations:

Absence Policy
All students are expected to actively participate in class activities. Unexcused or excessive absences may result in lowering of the course grade. All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Absences pre-approved by the UA Dean of Students (or Dean’s designee) will be honored.

Late Papers
Papers and projects are expected to be turned in on time. All work submitted after the due date will incur a 10% late penalty for each day it is late (including weekends and holidays); unless the student has a valid emergency and prior arrangements have been made with the Instructor.

Academic Integrity
The faculty supports the Code of Academic Integrity of the University of Arizona as described in the University of Arizona general catalog. The use of ideas and writings of another as one’s own (plagiarism) is prohibited. For more details see the Code of Academic Integrity: http://deanofstudents.arizona.edu/codeofacademicintegrity

For helpful hints on what constitutes plagiarism and how to avoid it in the first place, please see http://www.library.arizona.edu/help/tutorials/plagiarism/index.html

The University of Arizona Statement on Drug Free Schools and Campuses can be found in the website: http://www.hr.arizona.edu/09_rel/drugstmt.php

Policies against threatening behavior by students: http://policy.arizona.edu/threatening-behavior-students

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Student Code of Conduct for the University of Arizona
This can be found at: http://deanofstudents.arizona.edu/studentcodeofconduct

For specific policies pertaining to the College of Nursing Graduate Students, please refer to the Student Graduate Handbook: http://www.nursing.arizona.edu/studenthandbooks.htm

Rules of Netiquette
Some basic guidelines are located at: http://www.albion.com/netiquette/corerules.html

Accommodation
Students who need special accommodation in order to meet the objectives of the course are asked to speak with course faculty at the beginning of the semester. The Disability Resources Center (520-621-3268 or http://drc.arizona.edu/) can assist students in establishing eligibility for and determining reasonable accommodations. Accommodations will only be provided to students registered with the Disability Resource Center. http://catalog.arizona.edu/2012-2013/policies/disability.htm

The American Academy of Nursing Code of Ethics can be found at: http://www.nursingworld.org/MainMenuCategories/EthicsStandards/CodeofEthicsforNurses.asp

Turnitin
If you decide to take and continue in this course, you are agreeing to submit your papers online, to the course D2L, which contains a plagiarism-prevention program called Turnitin. You should note that Turnitin will retain your paper as part of their date-base (without your name and any personal information) so that students who plagiarize from it can be detected. Because of this program, the vast majority of you who do their own work and cite their sources of information properly will not have to compete with students who commit undetected plagiarism. Anyone who has questions or problem with Turnitin may talk privately about this with the instructor. Further information about Turnitin can be found at: http://www.Turnitin.com.