Course Description
The goal of this course is to survey basic research methods in the field of information sciences and technology (IST). The focus is on the general issues concerning research design, research question development, literature review, writing, and qualitative, quantitative, and statistical methods. This course will provide help on your thesis work and prepare you for graduate studies.

Course Objectives
Upon completion of this course, each student should be able to:
- Understand key issues concerning research validity and ethics
- Understand how to develop research questions
- Understand the advantages and disadvantages of different research methods and statistical techniques
- Choose appropriate research methods and statistical techniques for a given research question
- Understand the purpose and key components in a research report, be able to prepare a research report as it pertains to his/her research questions, and critique research reports presented by others

Course Resources
Required text:

***Additional readings will be placed on the course web site on Angel.***

Grading
There are NO EXAMS in this class. Final grades will be based on a tally of the following assignments:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>Percentage</th>
<th>Points†</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework Assignments (5 at 20 points each)</td>
<td>100</td>
<td>38%</td>
<td>93-100</td>
<td>A</td>
</tr>
<tr>
<td>Class Participation (20 at 2 points each)</td>
<td>40</td>
<td>15%</td>
<td>90-92.9</td>
<td>A-</td>
</tr>
<tr>
<td>Literature Review Paper</td>
<td>50</td>
<td>19%</td>
<td>87-89.9</td>
<td>B+</td>
</tr>
<tr>
<td>Final Paper</td>
<td>50</td>
<td>19%</td>
<td>83-86.9</td>
<td>B</td>
</tr>
<tr>
<td>Final Presentation</td>
<td>20</td>
<td>8%</td>
<td>80-82.9</td>
<td>B-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>75-79.9</td>
<td>C+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>70-74.9</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60-69.9</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.59.9</td>
<td>F</td>
</tr>
</tbody>
</table>

260 points

Percentage Points† Grade
93-100 242-260 A
90-92.9 234-241 A-
87-89.9 226-233 B+
83-86.9 216-225 B
80-82.9 208-215 B-
75-79.9 195-207 C+
70-74.9 182-194 C
60-69.9 156-181 D
0-59.9 0-155 F

NOTE: You can calculate your grade at any time by dividing your current number of points by the number of points evaluated and multiplying it by 100. The result can then be compared to the grading scheme to determine your current grade.

†Final grades are determined by rounding points to the hundredth decimal place. Decisions regarding borderline grades will be made based on the student’s activeness in class participation.
**Course Assignments**

**Homework Assignments:** You will receive 5 homework assignments throughout the course of the semester. Each assignment is worth 20 points each for a max of 100 points. These assignments should be completed INDIVIDUALLY. Specific answers to homework assignments should never be shared. For additional details on this, please see Penn State's policy regarding Academic Integrity that is summarized below.

The purpose of the homework assignments is to help structure your critical thinking around the topics being covered in the course lectures. These assignments will encourage you to read ahead, identify the main points in the lectures, and ask relevant questions to help generate class discussion. The content of the assignments will focus on methodological topics that we cover in class. They will be progressive, building on each other. Their structure should allow you to use the same conceptual domain or phenomenon you want to study in each one. This will help you craft sections of your final paper throughout the semester.

The homework assignments will be distributed ON AVERAGE every other week and will be due on Angel at 11:59pm on Sunday. Assignments emailed after this deadline (starting at 12:00 am) will receive a 2 point grade reduction for each day that it is late.

**Class Participation:** Class attendance and participation are very important in determining your standing in the class. Students are expected to **read ahead** prior to coming to class. Class participation will be graded based on the quality of comments and answers provided to questions asked in class using the following rubric:

- 0 points: Answer/comment is vague or inaccurate
- 1 point: Answer/comment is accurate
- 2 points: Answer/comment is insightful/sparks discussion

Participation is worth 40 points, which is 15 percent of your grade. You are advised to keep track of your participation grade throughout the semester on the Angel grade book and adjust your class involvement accordingly. The link between your class participation points and your class participation letter grade is shown below:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>37-40</td>
<td>A</td>
</tr>
<tr>
<td>36</td>
<td>A-</td>
</tr>
<tr>
<td>35</td>
<td>B+</td>
</tr>
<tr>
<td>33-34</td>
<td>B+</td>
</tr>
<tr>
<td>32</td>
<td>B-</td>
</tr>
<tr>
<td>30-31</td>
<td>C+</td>
</tr>
<tr>
<td>28-29</td>
<td>C</td>
</tr>
<tr>
<td>24-27</td>
<td>D</td>
</tr>
<tr>
<td>0-23</td>
<td>F</td>
</tr>
</tbody>
</table>

Given that the purpose of these assignments is to assess your knowledge of the subject matter in class, make-up exercises are not available.

**Final Presentation:** You will need to prepare a 10-minute presentation that summarizes the ideas discussed in your final paper. This assignment is worth 20 points, which is 8 percent of your grade. Additional details on this assignment will be given later on in the course.

**Literature Review and Final Paper:** Your literature review and final paper are the largest single assignments in the course. Each is worth 50 points or 19 percent of your grade. This project is time and work intensive; however the ability to communicate your research ideas clearly and efficiently is one of the keys to doing good research. The homework assignments given throughout the semester will help you prepare your final paper. Any feedback received on homework assignments should be reviewed and the corrections should be incorporated into your final paper. Additional details on these assignments will be distributed later on in the course.
Penn State Policies

Academic Integrity Policy:
Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. According to Senate Policy 49-20, you must not engage in or tolerate any witnessed academic dishonesty. This includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of assignments, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students.

Academic integrity violations are taken VERY SERIOUSLY in this course. Consequences for violating academic integrity can range from receiving an F in the assignment, receiving an F in the course, being removed from the honor’s program, to having the violation placed on your permanent academic record. Any violation of academic integrity will be investigated, and where warranted, punitive action will be taken. For every incident when a penalty of any kind is assessed, a report must be filed. This form is used for both undergraduate and graduate courses. This report must be signed by both the instructor and the student, and then submitted to your appropriate Academic Integrity Officer.

Class Absence Policy:
According to Senate Policy 42-27, on occasion students may opt to miss a class meeting in order to participate in a regularly scheduled university-approved curricular or extracurricular activity, or due to unavoidable or other legitimate circumstances such as illness, injury, family emergency, or religious observance.

Whenever reasonable, a student should submit a class absence form a week in advance:
http://www.psu.edu/oue/aappm/classabs.pdf

Religious observance can be a legitimate reason for an absence. Academic Administrative Policy and Procedure R-4, Religious Observances http://www.psu.edu/oue/aappm/R-4.html, provides further information and a link to an all inclusive list which provides both major and minor religious holidays, maintained by the Center for Ethics and Religious Affairs.

Affirmative Action & Sexual Harassment Policy:
The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity or veteran status. Discrimination or harassment against faculty, staff or students will not be tolerated at The Pennsylvania State University. You may direct inquiries to the Office of Multicultural Affairs, 332 Information Sciences and Technology Building, University Park, PA 16802; Tel 814-865-0077 or to the Office of Affirmative Action, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-865-4700/V, 814-863-1150/TTY.

Americans with Disabilities Act:
IST welcomes persons with disabilities to all of its classes, programs, and events. If you need accommodations, or have questions about access to buildings where IST activities are held, please contact us in advance of your participation or visit. If you need assistance during a class, program, or event, please contact the member of our staff or faculty in charge. Access to IST courses should be arranged by contacting the Office of Human Resources, 332 Information Sciences and Technology Building, (814) 865-8949.

An Invitation to Students with Learning Disabilities:
It is Penn State's policy to not discriminate against qualified students with documented disabilities in its educational programs. If you have a disability-related need for modifications in your testing or learning situation, your instructor should be notified during the first week of classes so that your needs can be accommodated. You will be asked to present documentation from the Office of Disability Services that describes the nature of your disability and the recommended remedy. You may refer to the Nondiscrimination Policy in the Student Guide to University Policies and Rules.
Schreyer Honors College Thesis Information

To help you get the most out of the course, information is provided below on the Honor’s Thesis.

General Information:

General information on the Honor’s Thesis including writing and formatting requirements can be found at: http://www.shc.psu.edu/students/thesis/

Examples of Theses:

Honors Theses: You can browse previous undergraduate honors theses in IST by clicking the link below and scrolling down to "Information Sciences and Technology" in the Area of Honors column: https://honors.libraries.psu.edu/

Dissertation and Masters Theses: You can also browse previous dissertation and masters theses in IST by clicking the link below and selecting "Information Sciences and Technology" in the program area: http://www.libraries.psu.edu/psul/digital/etd.html

Important Dates:

There are three main submissions that need to be made to the Honor’s School when completing a Thesis. These dates are listed below for Spring 2016 juniors who plan on graduating in Spring 2017. However, the full list of dates can be found at http://www.shc.psu.edu/students/dates.cfm based on the semester in which you are graduating.

1) Thesis Proposal Report (TPR) due in junior year on Monday, April 15, 2016 by 11:59 p.m. (see questions asked in TPR on the next page)
2) The close to finished thesis is due a year later for a Mandatory Thesis Format Review - due Monday, March 3, 2017 by 11:59 p.m.
3) The Final Thesis needs to be submitted to the Honor’s School less than a month later - due Monday, April 10, 2017 by 11:59 p.m.

Below is a sample project timeline to keep in mind based on your academic year.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophomore and Junior Years</td>
<td>Early exploratory research and brainstorming; talk with faculty</td>
</tr>
<tr>
<td>End of Junior Year (submit your approved Thesis Proposal Report)</td>
<td>Prepare basic statement of topic, goals, expected outcomes; get approval by supervisor and adviser</td>
</tr>
<tr>
<td>Summer / Early Fall</td>
<td>Complete the majority of primary and secondary research and/or creative project work and analysis</td>
</tr>
</tbody>
</table>

*Source: http://www.shc.psu.edu/students/thesis/

Additional Help:

Additional information about theses can be found in the SHC Student Handbook. Schreyer Scholars may also seek advice from the SHC Associate Dean regarding questions related to thesis project planning and project work. If you have any questions about the information provided in the Electronic Thesis Submission Guide, seek advice from the SHC Coordinator of Student Records.
SAMPLE Questions in Thesis Proposal Report

DUE Monday, April 15, 2016 at 11:59 p.m. for Spring 2017 graduates

Part B: Due one year prior to graduation.

Please note that this web form will generate your Thesis Proposal Report (TPR). The TPR document should be signed by the appropriate faculty members and turned into the Schreyer Honors College in C-4 Atherton Hall. If your thesis readers change, please send an e-mail with the new readers to Roberta Hardin at rhh1@psu.edu.

1. Enter your working thesis title (in all capital letters):

2. Enter your name as you want it to appear on your diploma (in all capital letters):

3. Please choose the semester and year you will be graduating:
   Semester:  Fall Spring Summer Year:  2016 2017 2018 2019

4. Please enter your major:

5. Below, please enter either the academic discipline OR the academic disciplines in which you are seeking interdisciplinary honors. You should only fill in one of the text boxes below.
   Honors In:
   OR
   Interdisciplinary Honors In:

Below, identify the faculty members who will be approving this TPR. Please note that the faculty members you provide below must sign your generated TPR.

6. Please identify the faculty member who will serve as your thesis supervisor:
   Supervisor Name:  Supervisor Title:  Supervisor Email:

7. (Optional) If you have co-supervisors on your thesis, please identify the second supervisor:
   Supervisor Name:  Supervisor Title:  Supervisor Email:

8. Please identify your honors advisor below:
   Honors Adviser Name:  Adviser Title:  Adviser Email:

9. If you are pursuing interdisciplinary honors, identify your second honors adviser below:
   Honors Adviser Name:  Adviser Title:  Adviser Email:

10. (Optional) Identify a second faculty reader for your thesis, if you require one (Note that all theses must be read by two faculty readers. If your honors adviser and thesis supervisor are the same person, then a second faculty reader is required).
    Faculty Member: Title:  Email:

11. (Optional, but required by some departments) Give the name of the Department/Program Head of your department below. Department/Program Head:  Email:

Page 1 of 2
Please answer the following questions about your thesis as fully as possible at this time:

1. Provide a clear statement of the purpose or objective of your thesis or creative project. List any research questions or hypotheses (as appropriate). In brief, what is the rationale for conducting this work? What is the proposed design or plan of your project?

2. What is the intended outcome of your project? If appropriate, how will you analyze your data and what results do you anticipate? What contributions (publications, exhibits, performance, etc.), conclusions or applications do you anticipate as a result of your thesis?

3. What is the project budget of your project?
   - LESS THAN $50
   - $50 - $99
   - $100 - $199
   - $200 - $299
   - $300 OR MORE

4. Will you apply for a Thesis Research Grant (Honors Thesis Research Grant Request form (PDF)): Yes No

5. Will your project require approval for research involving humans, animals, biohazardous materials or radioactive isotopes? No Yes Unsure
   
   Note that if you answered yes or unsure above, you should discuss this with your thesis supervisor, especially with reference to the information and time needed for the approval process. If using human or animal subjects, students are required to take an online course before submitting a research project for review. Please review the Office of Research Protections Web page at: http://www.research.psu.edu/orp/ for information about the course and review process.

6. OPTIONAL: According to your adviser, please list ten sources that you have already consulted on your project. These must be in a bibliographic format appropriate to the discipline of your thesis.

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**IST 489H Spring 2016: Course Schedule (updated 1/26/16)**

*ALL Assigned Readings that are indicated on the schedule below should be completed before class. Where indicated, additional readings will be posted on Angel.*

<table>
<thead>
<tr>
<th>Week</th>
<th>Month</th>
<th>Day</th>
<th>Tuesday</th>
<th>Day</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan</td>
<td>12</td>
<td>Course Mechanics/ Introduction</td>
<td>14</td>
<td>Chapter 1: Introduction to Research Methods</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>Chapter 2: Developing RQs &amp; Hypotheses</td>
<td>21</td>
<td>Appendix A: Writing Research Papers (pp. 295-311) HW#1 DUE: Idea Development (Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Feb</td>
<td>26</td>
<td>Readings on Angel: Ethics in Research</td>
<td>28</td>
<td>Chapter 4: Measures (Class moved to 215 IST)</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Chapter 5: Reliability &amp; Validity</td>
<td>4</td>
<td>Chapter 5: Reliability &amp; Validity HW#2 DUE: Measure Evaluation (Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>Chapter 6: Surveys &amp; Sampling</td>
<td>11</td>
<td>Chapter 6: Surveys &amp; Sampling</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>Library Skills: Session 1</td>
<td>18</td>
<td>Library Skills: Session 2 HW#3 DUE: Survey Design (Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>23</td>
<td>Chapter 7: Naturalistic Methods</td>
<td>25</td>
<td>Chapter 7: Naturalistic Methods</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mar</td>
<td>1</td>
<td>Readings on Angel: Naturalistic Methods</td>
<td>3</td>
<td>Readings on Angel: Naturalistic Methods</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>NO CLASS: Spring Break!</td>
<td>10</td>
<td>NO CLASS: Spring Break! (Literature Review DUE Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>Chapter 9: Correlational Designs (pp. 170-182)</td>
<td>17</td>
<td>Readings on Angel: Correlational Designs</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>22</td>
<td>Chapter 12: Experimental Designs</td>
<td>24</td>
<td>Chapter 12: Experimental Designs</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>29</td>
<td>Readings on Angel: Experimental Designs</td>
<td>31</td>
<td>Readings on Angel: McGrath’s Threats to Validity HW#4 DUE: Critique of Research Designs (Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Apr</td>
<td>5</td>
<td>Chapter 8: Hypothesis Testing</td>
<td>7</td>
<td>Chapter 8: Hypothesis Testing</td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>Appendix B: Statistical Techniques</td>
<td>14</td>
<td>Appendix B: Statistical Techniques (Class moved to 215 IST)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>19</td>
<td>Notes Provided in Class: Statistical Techniques</td>
<td>21</td>
<td>Class Discussion: Concept Review HW#5 DUE: Evaluate Statistical Methods (Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>26</td>
<td>Final Presentations DUE</td>
<td>28</td>
<td>In-Class Work Day (Final Paper DUE Sunday at 11:59pm)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>May</td>
<td>2</td>
<td>FINALS WEEK – NO CLASS</td>
<td>5</td>
<td>FINALS WEEK – NO CLASS</td>
</tr>
</tbody>
</table>

NOTE: This syllabus provides a general plan for the course. Deviations may be necessary and will be distributed by ANGEL email if and when necessary.