Example

Request for Independent Study IST 596

Complete the following form with your selected instructor. Please note: you are only allowed to take a maximum of 6 credits of IST 596 during the duration of your program to fulfill specialization course requirements. Independent studies must have a deliverable.

Student: _______________________________ PSU ID #: __________

E-mail: ________________________________

Faculty member who will be your instructor: ________________________________

Number of credits for which student is enrolling: ______________________________

Semester/year for which student is enrolling: ______________________________

Statement indicating why the student's interest cannot be served by a regularly scheduled Penn State course:

This course is specifically designed for the student’s master’s thesis research, which will directly guide the student to finish the research project and thesis writing. The course will cover the existing research strands on artificial intelligence in healthcare and methodologies in the fields of Human-Computer Interaction (HCI) and Health Informatics, which pertain to the student’s thesis research. Thus, different from regularly scheduled courses which usually focus on general knowledge in a specific domain, the course is highly focused on the student’s individual research needs.

Description of Independent Study:

- Course Title:
  Advanced topics on healthcare technologies

- Course Description:
  This course will survey the major research areas and challenges in the fields of Human-Computer Interaction (HCI) and Health Informatics, with a special focus on the healthcare Artificial Intelligence (AI)-based chatbots. The course is writing intensive, mixing literature reviews and critiques with research projects. Sample topics include computer supported cooperative work in healthcare, new roles of and work created by AI technology in healthcare, and trust in AI systems. The course will be structured with weekly readings, discussions, and 1-page weekly writing synthesis. By the end of the course, the student will complete a master’s thesis aligned to the research direction of her Ph.D. dissertation.
• **Learning Objectives:**

To understand the current research landscape of AI in healthcare.
To master the main research methodologies in Human-Computer Interaction and health informatics
To improve the academic writing skills.

• **Course Activities:**

Reading academic papers.
Writing a literature review.
Discussing research direction and questions.
Collecting and analyzing data.
Writing weekly summaries (1-page summary).
Finishing thesis writing.

• **Assessment** (Please be specific on how the course activities will be assessed):

  Weekly writings 50%
  Final thesis 50%

• **Meeting Times** (Please be specific on when you will meet with the instructor):

  Wednesday 2:30 pm-5:00 pm

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**Signatures**

**Student:**

Date:

**Instructor:**

Date:

Return form to the Graduate Program Coordinator, Westgate Building, to obtain Graduate Director's approval signature and to add the course to your schedule.

**Graduate Director:**

Date:
Course Syllabus
IST 596 Independent Study
Spring 2020

Class time: Wednesday 2:30 pm-5:00 pm
Instructor:

This course will survey the major research areas and challenges in the fields of Human-Computer Interaction (HCI) and Health Informatics, with a special focus on the healthcare Artificial Intelligence (AI)-based chatbots. The course is writing intensive, mixing literature reviews and critiques with research projects. Sample topics include computer supported cooperative work in healthcare, new roles of and work created by AI technology in healthcare, and trust in AI systems. The course will be structured with weekly readings, discussions, and 1-page weekly writing synthesis. By the end of the course, the student will complete a master’s thesis aligned to the research direction of her Ph.D. dissertation.

Objectives

Upon completion of this course, students will be able to:

- Understand the current research landscape of AI in healthcare.
- Master the main research methodologies in Human-Computer Interaction and health informatics
- Improve the academic writing skills.

Textbook

There is no need to purchase textbooks. Students will be provided with reading materials.

Assessment of Performance

Grades will be assessed on required activities throughout the semester.

Course Grading Breakdown

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<tr>
<th>Grading Category</th>
<th>Percentage of Final Grade</th>
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1
Weekly papers 50%
Final thesis 50%
TOTAL 100%

Course Grading Scale: The following are minimum cutoffs for each grade:

- 90%+ = A 88%+ = A- 85%+ = B+ 80%+ = B 77%+ = B-
- 75%+ = C+ 70%+ = C 60%+ = D less than 60% = F

Course Policies and Expectations

- **Late submission.** Homework and term project reports must be submitted on time. Permission for late submission must be requested from the instructor before any late submission can be accepted. A penalty of up to 30% will be assessed if a submission is within 3 days after the deadline. No submissions will be accepted three days after the deadline.

- **Communication through Canvas.** Students are expected to use Canvas for all course email communication. Please login regularly to check for course updates, announcements, emails, discussions, etc. Every attempt will be made for the instructor (or a substitute) to respond to email questions within 24 hours.

- **Class participation** is required on all scheduled class meetings and will be monitored by attendance survey. Students should devote their full attention to the meetings. At the discretion of the instructor, active participation of class activities may be awarded with bonus points. In case of missing classes for legitimate reasons, the instructor must be notified in advance, and a plan to make up the missing activities must be discussed with the instructor. Missing classes without acceptable reasons will be recorded as penalty grade: 1st missing class: -2%; 2nd missing class: -3%; 3rd missing class: -5%.

University Policy

**Students with disabilities.** It is Penn State’s policy not to discriminate against qualified students with documented disabilities. If you have a disability-related need for modifying your exam or test environment, notify your instructor 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 (located...
in 105 Boucke Building) 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.

**Americans with Disabilities Act.** The School of Information Sciences and Technology (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 the Dean’s Office (814) 865-3528 in advance of your participation or visit. If you need assistance during a class, program, or event, please contact any member of our staff or faculty in charge.

**PSU Statement on Academic Integrity.** According to the University Advising Handbook: "Academic integrity is the pursuit of scholarly activity free from fraud and deception, and is the educational objective of this Institution. Academic dishonesty includes, but is not limited to, cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be thoroughly investigated, and where warranted, punitive action will be taken." Students should be aware that standards for documentation and intellectual contribution may depend on the course content and method of teaching, and should consult instructors for guidance.

### Course Outline and Schedules

This schedule is tentative and subject to change throughout the semester.

- **Week 1:** Thematic analysis
- **Week 2:** Participatory design
- **Week 3:** Interview
- **Week 4:** Health Data Analytics
- **Week 5:** Healthcare chatbots interface design
- **Week 6:** Healthcare chatbots conversational design
- **Week 7:** Healthcare chatbots evaluation
- **Week 8:** Computer supported cooperative work in healthcare
- **Week 9:** Spring break
- **Week 10:** Trust in healthcare AI systems
- **Week 11:** Medical language processing
Week 12: Evidence-based medicine

Week 13: Health information safety and security

Week 14: Imaging, Robotics, and Virtual Reality in healthcare