Course Description

This course describes methods of conducting research in computer science. Current research in several different areas of computer science will be presented. Students will review and critique articles in the areas as well, focusing on their underlying principles. (The weekly workload may span 9 to 15 hours approximately and depends on individual students' background.)

Course Time and Room

Tue. / Thu. 5:30PM - 6:50PM (US Central Time), COB 255 (15-week schedule)

Instructor Information

Dr. Wingyan Chung (wchung@uttyler.edu, office: COB 315.09)
Professor, Computer Science Dept.

Office Hours

Tuesday and Thursday 3:00 - 4:00 pm and by appointment in COB 315.09
Emails will normally be answered within 2 business days; emails received during Friday–Sunday will be answered by the following Tuesday.

Textbook Information

The following textbook is required throughout the semester and is available from the university bookstore and the website linked below.
- [L] = Michelle Newhart & Mildred L. Patten "Understanding Research Methods: An Overview of the Essentials, 11 ed.," Routledge (2023).

Course Objectives

Upon successful completion of this course, students should be able to:
- Describe and explain the concepts, process, and methods involved in scientific research,
- Critically review and document research literature in the fields of computer science and information systems,
- Analyze research data using modern computer software, and
- Present research findings in a professional manner.

Computer Account Access

Students will need a Patriot account and password for computer access. This information can be found at `https://www.uttyler.edu/technology-support/patriots-account/`

Course Materials

This class will use Canvas for course documents, slides, submission of assessment items, assignments, online discussions, quizzes and other class-related materials. Students should check the Canvas site frequently during the semester to keep up to date about course activities. Submissions are due by 11:59:00 pm on the due date (except otherwise stated). Students should submit their work early to avoid last-minute hassles. Email submission is NOT accepted.

Course Grading

Assessment of student performance will be based on the following:

Assignments	40
Class Participation	10
Mid-Term Exam	10
Term Paper	20
Final Exam	20
Total Points	100

Grading Scale

A = 90.0 points or more
B = 80.0 to less than 90.0 points
C = 70.0 to less than 80.0 points
D = 60.0 to less than 70.0 points
F = Less than 60.0 points

Course Policies

1. Assignments (A) – Assignments will allow students to review course materials and practice the concepts and skills. Late submission (within 3 days after due date) will incur a 30% deduction in score. Submission is closed afterward.

2. Class Participation (C) – Class Participation points will be scored by completing in-class activities assigned by the instructor in a periodic basis. The activities may include practice exercises, discussion posts, peer research evaluation, and short writing exercises, among others. No late submission is allowed.

3. Mid-Term Exam (M) / Final Exam (F) – Individual comprehensive exam is scheduled to be done in class. Details of the exam arrangement will be provided.

4. Term Paper (T) – Individual term paper will allow students to practice their research skills in the preparation of an academic research paper focused on a selected topic. Students are required to meet several milestone requirements and to present the paper at the end of the semester.

5. Make-up or Extension for Missed Submissions – Make-up or extension for missed submissions are available ONLY for valid reasons pre-approved by the Office of Student Accessibility and Resources or for serious sickness / emergencies (with doctor's notices / proper documentations submitted prior to or in the same week of the deliverable). To be considered for make-up or a short extension (normally within 1 week after submission is closed), students must email official documentations to the instructor before the due date of the assessment items.

6. Student Responsibility – Students are expected to attend all classes punctually in person and to check the learning management system and their university email regularly to perform all course-related tasks. Students should behave properly to facilitate active class learning, and should avoid checking emails / online media and browsing the web (except guided by the instructor).

7. Academic Integrity – Academic dishonesty is strictly prohibited and is a violation of the university rules. Any form of dishonesty, such as (but not limited to) plagiarism, cheating, collusion, and copyright infringement, is strictly prohibited and will be punished according to university rules.

Course Schedule

Week	Start Date	Topic	Materials	Items Due
1	8/21	Introduction to Research Methods	Syllabus; N-Pt. 1	
2	8/28	Design Science Research in the IS and CS Disciplines; Writing about Research (1)	Hevner et al. (2004); N-Pt. 9	C1 (Thu.)
3	9/4	Reading, Reviewing, and Citing Literature	N-Chs. 2, Gregor & Hevner (2013)	A1 (Thu.)
4	9/11	Basic Concepts in Quantitative Research	N-Pt. 3	C2 (Thu.)
5	9/18	Designing Quantitative Research	N-Pt. 4	A2 (Thu.)
6	9/25	Assessing Research Quality: Validity and Reliability	N-Pt. 5	C3 (Thu.)
7	10/2	Mid-Term Exam	M	
8	10/9	Sampling for Quantitative Research: Populations, Samples, Error and Bias	N-Pt. 6	C4 (Thu.)
9	10/16	Sampling for Quantitative Research: Modern Techniques, Sample Size	N-Pt. 6	A3 (Thu.)
10	10/23	Analyzing Quantitative Data: Descriptive Statistics	N-Pt. 7	
11	10/30	Analyzing Quantitative Data: Inferential Statistics, Practical Significance	N-Pt. 7	C5 (Thu.)
12	11/6	Writing about Research (2)	N-Pt. 9	A4 (Thu.)
13	11/13	Student Research Presentation (1)	-	
14	11/20	Student Research Presentation (2)	-	
15	11/27	Student Research Presentation (3)	-	T (Sun.)
		Final Exam (12/5, 4:15 pm – 6:15 pm)	-	E (Tue.)

Remarks:

N – Course textbook by Newhart & Patten
A – Assignments
C – Class Participation
M – Mid-term Exam
F – Final Exam
T – Term Paper