

CS8695: RESEARCH IN COMPUTER SCIENCE

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Research In Computer Science

Subject Code

CS - Computer Science

Course Number

8695

Academic Unit

Computer Science (CS)

College/School

College of Computing (CC)

Course Duration

One Semester

Credit Units

2

Level

R8 - Research Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

The aim of this course is to foster graduate students' competencies and promote active participation in research planning. Through attendance, a student will (i) learn about recent research trends and results in the literature from different areas;

(ii) be aware of and appreciate various presentation skills and styles; (iii) come into contact with external and internal researchers; (iv) understand the importance of research ethics and integrity, and appreciate various research ethical issues such as research misconducts and reproducibility. Through report writing, the student will (v) perform an in-depth study of a research topic by conducting literature search, and practice comprehension and writing skill. Through seminar presentation, the student will (vi) develop and practise presentation skill.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Recognize the strengths and limitation of different research methods by conducting a comprehensive literature search.		x		
2	Acquire an understanding of the importance of research ethics and integrity.			x	
3	Appreciate and apply different formats of presentation.		x		
4	Able to evaluate on existing research findings critically and discover possible solutions to these findings.		x	x	
5	To communicate and deliver research findings effectively.		x		

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures The lectures, delivered by different faculty members, will focus on the introduction of research methodologies and topics from different research areas. In one of the lectures, different topics related to research ethics and integrity issues which include types of research misconduct, conflicts of interests, peer review process, etc. will be introduced to students, so that they can develop a capacity to make judicious decisions on research ethical issues. In one of the lectures, the major databases or search tools for computer science research, e.g., IEEE Xplore, ACM Digital Library, Science Citation Index, etc., will be introduced to the students, so that they can learn to conduct effective literature search in different areas of computer science.	1, 2	
2	Seminars Students will attend at least four seminars or colloquia.	3	
3	Presentations Each student will give a seminar presentation based on a selected research topic in computer science.	4	

4	Evaluation of research findings	Each student will perform a critical evaluation of the research findings in one of the seminars/ colloquia attended, identify the advantages and limitations of the research methods adopted by effectively utilizing the main databases or search tools to conduct literature review, and summarize these findings in the form of a report. Students will learn about the importance of research reproducibility with respect to code and data, and should explain how to avoid pitfalls related to research ethics and integrity issues in their research findings.	5	
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Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Lecture/seminar attendance	1, 2, 3	40	NA	No
2	Presentation	4	30	Students can only use GenAI for editing the English of the report, or brainstorming. GenAI cannot be used for other aspects, e.g., writing code or analyzing experiment result.	Yes
3	Report	5	30	Students can only use GenAI for editing the English of the report, debugging code, or brainstorming. GenAI cannot be used for other aspects, e.g., writing code or analyzing experiment results.	Yes

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)

Assessment Task

Lecture/seminar attendance and reporting (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

- Ability to judiciously apply research methodologies learnt from the lectures/seminars to various research topics in computer science.
- Ability to understand the importance of research ethics and integrity, and make judicious decisions on research ethics issues, e.g. research misconducts and reproducibility in data/code.
- Capability to summarize and communicate research findings from different research areas in an effective way.
- Capacity to recognize the merits/limitations of different research methodologies.
- Ability to utilize the main databases and search tools for computer science research to conduct effective literature review.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Presentation (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

- Capacity to critically analyse existing research problems, and to discover possible solutions to these problems.
- Capability to effectively prepare and deliver a seminar to provide a critical analysis of a current research problem.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Lecture/seminar attendance and reporting (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

- Ability to judiciously apply research methodologies learnt from the lectures/seminars to various research topics in computer science.
- Ability to understand the importance of research ethics and integrity, and make judicious decisions on research ethics issues, e.g. research misconducts and reproducibility in data/code.
- Capability to summarize and communicate research findings from different research areas in an effective way.
- Capacity to recognize the merits/limitations of different research methodologies.
- Ability to utilize the main databases and search tools for computer science research to conduct effective literature review.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate to Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Presentation (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

- Capacity to critically analyse existing research problems, and to discover possible solutions to these problems
- Capability to effectively prepare and deliver a seminar to provide a critical analysis of a current research problem.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C, C-) Moderate to Basic

Failure

(F) Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Research Seminars, Computer Science Research, Research Methodology, Presentations, Research Topics, Literature Search, Research ethics and integrity issues, Research reproducibility, Computer Networks, Distributed Systems, Information Security, E-commerce Technologies, Software Engineering, Service-Oriented Computing, Real-time Systems, Embedded Systems, Applied Algorithms, Multimedia Technologies, Computer Systems, E-learning, Innovative Technology for Education, Bioinformatics, Artificial Intelligence and Knowledge and Data Management.

Reading List

Compulsory Readings

Title	
1	N/A

Additional Readings

Title	
1	N/A