



Course Syllabus

Course Code COMP-500DL	Course Title Research Seminars and Methodology	ECTS Credits 6
Prerequisites None	Department Computer Science	Semester Fall/Spring
Type of Course Required	Field Computer Science	Language of Instruction English
Level of Course 2 nd Cycle	Lecturer(s) Prof. Athena Stassopoulou	Year of Study 1 st
Mode of Delivery Distance Learning	Work Placement N/A	Corequisites None

Course Objectives:

This course is designed to provide a deep and systematic understanding of the nature and conduct of CS research and to equip students with the ability to undertake independent research. The course will consist of three parts:

- a) Introduction to research: This will include lectures on research strategy and tactics, how to search and review literature, how to evaluate research, how to present research (both written and oral). The course will also include a section on basic statistical analysis and on designing experiments for the purpose of testing research hypotheses, and evaluating experimental results.
- b) Research Seminars: The course will include CS seminars from faculty of the Department or/and other Universities as well as from research centers and the industry. Each seminar will focus on the area of specialization of the speaker and will clearly detail the approach used such as models, methodologies, algorithms, experimental set up and results etc.
- c) Literature Review: Students will undertake a literature review on a specific topic within one area of specialization (e.g. Distributed Systems, System Security, Networks, Mobile Computing, Artificial Intelligence, etc). The student will do a literature search and write the findings of this search in the form of a paper which will then be presented in class at a mini-conference. Students opting for the thesis option for their MSc, can use this part of the coursework to perform introductory-background work for their thesis.

Learning Outcomes:

After completion of the course students are expected to be able to:

- demonstrate an understanding of how established techniques of research and enquiry are used to extend, create and interpret knowledge in Computer Science.
- evaluate critically current research in Computer Science, and propose possible alternative directions for further work.
- design experiment for the purpose of testing research hypotheses, and evaluate the results of those experiments.
- deal with complex issues at the forefront of the academic discipline of Computer Science in a systematic and creative manner and to communicate conclusions clearly to both specialists and non-specialists.
- demonstrate independence and originality in tackling and solving problems within the area of Computer Science, and to act autonomously in planning and implementing solutions in a professional manner.
- continue to advance their knowledge and understanding, and to develop new skills to a high level, and become independent life-long learners across the discipline of Computer Science.
- define and plan a piece of independent research.

Course Content:

1. Introduction and overview
2. The nature of Computer Science research: what is research
3. Literature searches, information gathering
4. Reading and understanding research papers
5. Technical writing, referencing, bibliographies
6. Presentation skills, written and oral
7. A series of research seminars from academia and industry
8. Review of legal, ethical, social and professional issues including data protection and standards

Learning Activities and Teaching Methods:

Lectures, Seminars, Assignments.

Assessment Methods:

Homework assignments
Seminar Reports
Research Report (individual)
Presentation

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Practical Research: Planning and Design (9th edition)	P. D. Leedy and J. E. Ormrod	Prentice Hall	2009	0136100872
The Elements of Style (4th edition)	W. Strunk Jr. and E. B. White	Longman	1999	9780205309023
Thesis Projects A Guide for Students in Computer Science and Information Systems (2 nd edition)	M. Berndtsson, J. Hansson, B. Olsson and B. Lundell	Springer	2008	978-1-84800- 008-7