





Computer Science (COMP) 695

Research Methods in Information Systems (Revision 2)

Status: Replaced with new revision, see the [course listing](#)  for the current revision 

Delivery mode: [Grouped study](#) 

Credits: 3

Area of study: Information Systems


Prerequisites: [COMP 601](#).

Precluded: None

Faculty: [Faculty of Science and Technology](#) 

Notes:

Students who are concerned about not meeting the prerequisite for this course and encouraged to contact the course coordinator before registering.

This is a graduate level course and students need to apply and be approved to one of the graduate programs or as a non-program [School of Computing and Information Systems](#)  graduate student in order to take this course. Minimum admission requirements must be

met. Undergraduate students who do not meet admission requirements will not normally be permitted to take this course.

Instructor:

Vive Kumar [↗](#)

Overview

Research is a unique activity. It extracts testable insights from researchers and uses rigorous methods to reach validated proofs for those insights. At the same time, it is flexible about the selection of methods, the interpretation of results, and the type and scope of problems considered. “Every significant piece of research not only contributes to the evolution of the human knowledge frontier, the ‘what’, but also enriches the process mechanisms underlying research, the ‘how’.”¹ This course offers a broader scope on research methods, at the same time allowing students to study deeper on topics of interest.

1. Kumar, V. (2011). Book review: Process Guide for Students for Interdisciplinary Work in Computer Science/Informatics (2nd ed.) (Author: Andreas Holzinger). *Educational Technology & Society*, 14 (2), 287–288

Outline

Computer Science 695 comprises the eleven units listed below.

- Unit 0: Orientation
- Unit 1: What is Research? Research Problems, Hypotheses, and Literature Reviews
- Unit 2: Sampling, Measurement, Reliability, and Validity
- Unit 3: Data Collection, Statistics, and Statistical Analysis
- Unit 4: Mining, Simulation, Optimization, and Modeling
- Unit 5: Qualitative Research



- Unit 6: Survey Research
- Unit 7: Correlational Research
- Unit 8: Experimental Research
- Unit 9: Select Research Methods
- Unit 10: Action Research
- Unit 11: Research Plan

Objectives

This course is designed to

- describe aspects of knowledge presented in a research article and formulate opinions about its quality;
- define, and use in context, terms used in particular research methods;
- review and compare and research outcomes;
- formulate research hypotheses;
- select computational techniques from information sciences for data analysis and inference;
- associate different types of research to computational problems in various domains;
- analyze data using sampling and measurement techniques to infer reliability and validity;
- apply and assess data mining, simulation, and optimization techniques;
- formulate, apply, and assess survey research, correlational research, experimental research, and qualitative research;
- apply and assess research analysis techniques, including content analysis, computational complexity, discourse analysis, conversational analysis, and longitudinal data analysis, to information sciences.

Evaluation

In order to **receive credit**  for COMP 695, you must achieve a cumulative course grade of **"B-" (70 percent)**  or better, and must achieve an average grade of at least 60 percent on the assignments and achieve a grade of at least

60 percent on the Final Examination. Your cumulative course grade will be based on the following assessment.

Assignment 1 and 2 cover topics introduced in Unit 1 through 10. Assignment 3 is a peer-reviewed research plan.

Activity	Weight
TME 1	15%
TME 2	15%
TME 3	50%
Final Take-home Assessment	20%
Total	100%

Materials

There is no textbook for this course.



Registered students will access the course materials through Moodle. Additional supporting materials of interest to students may occasionally be made available electronically.

Special Course Features

COMP 695 is offered online, and can be completed at the student's work place or home. Students are required to have access to the Internet and equipment that meets the necessary specifications. It is a required course in the Master of Science specialization in Information Systems program.

Important links

› [Future Course Offerings](#) 

- > [Important Dates and Deadlines](#) 
- > [MSc IS Contact Information](#) 

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Opened in Revision 2, November 1, 2012

Updated January 27, 2025
