



Computer Science (COMP) 695

Research Methods in Information Systems (Revision 3)

Status:

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

Delivery mode:

Paced study  . Delivered via Brightspace.

Credits:

3

Area of study:

Computing and Information Systems

Prerequisites:

COMP 601

Precluded:

None

Faculty:

Faculty of Science and Technology 

Notes:

This is a graduate-level course, and you must apply and be approved to one of the graduate programs or as a non-program [School of Computing and Information Systems](#)  graduate student 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.

If you are concerned about not meeting the prerequisite for this course, contact the course instructor before registering.

Instructor:

Dr. Maiga Chang [↗](#)

Overview

Research is a unique activity. It exacts testable insights from researchers and uses rigorous methods to reach validated proofs for those insights. At the same time, research 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

COMP 695 offers a broader scope on research methods while allowing you to study deeper on topics of interest.

¹ Kumar, V. (2011). Review of the book *Process guide for students for interdisciplinary work in computer science/informatics* (2nd ed.), by A. Holzinger. *Educational Technology & Society*, 14(2), 287–288.

Outline

COMP 695 includes 11 units:

- 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: Correlation Research
- Unit 8: Experimental Research
- Unit 9: Select Research Methods
- Unit 10: Action Research
- Unit 11: Research Plan

Learning outcomes

Upon successful completion of this course, you should be able to

- evaluate the qualities of a research article.
- review, 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.
- define, and use in context, terms used in particular research methods.
- describe aspects of knowledge presented in an article and formulate opinions about the article's quality.
- analyze data using sampling and measurement techniques to infer reliability and validity.
- apply and assess data mining, simulation, optimization, and graphical modeling techniques (using Bayesian networks).
- formulate, apply, and assess survey research, correlational research, experimental research, and qualitative research.
- assess research analysis techniques—including content analysis, computational complexity, discourse analysis, conversational analysis, and longitudinal data analysis—and apply them to information sciences.

Evaluation

To **receive credit** [↗](#) for COMP 695, you must achieve a course composite grade of at least **B– (70 percent)** [📄](#), an average grade of at least 60 percent on the assignments, and a grade of at least 60 percent on the final assessment.

The weighting of the composite grade is as follows:

Activity	Weight
Assignment 1 (units 1–4)	15%
Assignment 2 (units 5–10)	15%
Assignment 3 (peer-reviewed research plan)	50%
Final take-home assessment	20%
Total	100%

Materials

All course materials are found online.

Important links

- › [Future Course Offerings](#) [↗](#)
- › [Important Dates and Deadlines](#) [↗](#)
- › [MSc CIS Contact Information](#) [↗](#)

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

Opened in Revision 3, January 27, 2025

Updated July 10, 2026

View **previous revision** 
