

# Research Seminar

CSC 4112

## Introduction – L1

Anusha Walisadeera (PhD)  
Department of Computer Science  
University of Ruhuna

# Objectives of the Course Unit

- The aim of this unit is to enable students to:
  - conduct a review of the state of the art and the state of the practice in a suitably scoped areas of Computer Science and engage critically with the work of others.
  - identify a gap in the current research or practice which is sufficiently challenging for further investigation in the Computer Science field. The defined area will involve some element of novelty or originality.
  - develop a survey paper that critically reviews and summarizes state-of-the-art Computer Science solutions, addressing identified gaps

# Learning Outcomes

- **On successful completion of this course, students should be able to:**
  - work within a small team to identify, explain and compare the key elements of manuscripts.
  - critically evaluate literature and presentations, on research problems and issues relating to the defined area in Computer Science.
  - communicate scientific research via written and oral presentations.

# Course Content/Outline

- Introduction (L1)
- Selecting and Studying Literature (L2)
- Writing a Critique (L3)
- **Group Work** on Critical Review based on General Topic – Task 01 (Writing a Critical Review – submission of Task 01)
- **Individual Work** on writing a critique based on Research Topic – Task 02 (submission of Task 02)
- Research Communication (L4)
- Presentation on Critical review on Research Topic – Task 3 (based on the individual work)
- Literature review and Writing a Survey paper (L5)
- Individual work on writing a Survey paper – Task 04 (Submission of task 04)
- Presentation of Research Problem – 3MT Presentation – Task 05

# Method of Assessment

- Task 1: Critical Review on General Topic (1 paper) – Report
- Task 2: Critical Review on Research Topic (1 paper) – Report
- Task 3: Presentation based on Task 2- Presentation
- Task 4: Survey Paper on Research Topic – Survey paper
- Task 5: Three Minutes Presentation (3MT) based on the research problem – 3MT Presentation
- **Total marks based on Assignments (100%):**
- **Task 1(20% marks) + Task 2(20% marks) + Task 3(10% marks) + Task 4(40% marks) + Task 5(10% marks)**

# Tips on Conducting a Review

- **Selecting papers to study**
  - select relevant papers that align with your research topic or review objective
- **Manage bibliography**
  - organize and maintain a list of references or citations for the papers you review
- **Identify key elements of manuscripts**
  - identify and understand the main components, findings, and arguments presented in each paper
- **Summarizing**
  - summarize the main points/findings of each paper in a brief and clear manner
- **Paraphrasing**
  - restate the ideas or information from the papers in your own words, while still maintaining the original meaning

# Structure of a Computer Science Manuscript

- Title
- Abstract
- Introduction
- Literature Review
- Proposed Method
- Results
- Discussion and Conclusion

## Reference:

<https://www.editage.com/insights/manuscript-structure-how-to-convey-your-most-important-ideas-through-your-paper>

For example please refer the following paper:

Shi, T., Kang, K., Choo, J. and Reddy, C.K., 2018, April. Short-text topic modeling via non-negative matrix factorization enriched with local word-context correlations. In *Proceedings of the 2018 World Wide Web Conference*(pp. 1105-1114).

<https://dl.acm.org/doi/pdf/10.1145/3178876.3186009>

# Manuscript structure: Essential elements

- The manuscript begins with broad statements, narrows down to the specifics of your study, and ends with broad considerations





# Manuscript structure: Essential elements

- **Introduction (Broad Start):** At the top of the funnel, begin broadly by introducing the topic. Describe major theories related to the topic, explaining underlying assumptions and defining concepts.
- **Literature Review (Narrowing Down):** Narrow the focus to specific empirical research studies that support the theory. Discuss the present research project, including hypotheses and operational definitions.
- **Method and Results (Study-Specific):** The narrow part of the funnel includes the study-specific Method and Results sections.
- **Discussion (Broadening Again):** In the Discussion section, summarize study results in words (not numbers). Link results back to other empirical articles and discuss implications.
- **Conclusion (Broadest Base):** Finally, discuss the broader implications of the research.

# Q & A