



CSC 595 COURSE SYLLABUS*

COURSE NAME: RESEARCH METHODS

ABOUT THE COURSE

This course aims at preparing students to comfortably indulge in research for their graduation projects and theses. It sets the groundwork of the logic of inquiry. It adopts a systematic research methodology starting by a selection of a topic in the computer science disciplines and collecting a comprehensive list of references for it through the search of available information resources. Students are then asked to analyze the collected references in accordance with a set of criteria that appraise the publication information as well as the aspects of the contents, including objectivity, coverage, and writing style to obtain a desired list of references. This allows students to have practical skills in finding and using sources of research information, research management, and basic data analysis techniques. Following, students are asked to annotate each reference of such a desired list. The annotation includes:

- The focus of the reference.
- The usefulness of the reference.
- Limitations.
- Intended audience.
- Research methods.
- Conclusions that may have been put forward.
- Student's reaction to the reference.
- The relationships among references.

The students are then guided into writing a comprehensive literature review of the assigned/selected subtopic. In the process, students have the opportunity to compare one stream of literature with another, analyze each of the major theoretical positions, discuss and compare the thinking of the key writers in the field, analyze and compare different methodological approaches to their topics.

Throughout the work, students are guided to learn the process of formulating appropriate research questions and hypotheses. The students are asked to write a report of

* **The material in this document is based on the description of the course by Professor Hassn Mathkour in <http://faculty.ksu.edu.sa/mathkour/Pages/CSC595main.aspx>**



their literature review and their finding including research questions and hypotheses. Students may be able to arrive at a problem definition in the topic of concern or be able to scrutinize a new topic to formulate a problem for their theses and graduation projects.

In the **literature review**, students investigate:

- The author formulation and clarity, and significance as well strengths and limitation of the problem being investigated in his/her work.
- Different approaches to the problem.
- Theoretical framework being put forth.
- The relationship between the theoretical and research perspectives.
- Related work discussed by the author.
- The accuracy and relevance of the data and its analysis.
- The validity of the arguments and conclusions.
- The objectivity of the work.
- The value and originality of the contribution.
- Future work.

CSC595 COURSE OBJECTIVES:

1. Learn to research in a systematic fashion
2. Learn how to select a topic of interest
3. Learn how to collect information resources
4. Learn how to evaluate information resources
5. Learn how to write annotation bibliography
6. Learn the difference between abstract and annotated bibliography
7. Learn how to write a literature reviews
8. Learn how to formulate research problems
9. Perform an In-depth study of a topic
10. Be able to read several articles and search for ideas and/or perform implementation
11. Demonstrate understanding of your research through a presentation on the selected articles



CSC595 COURSE PHASES

PHASE 1: TOPIC SELECTION

Select a topic in a Computing discipline.

Some focus will be on the tools that are available for the selected topic. However, before considering the tools, issues pertaining to concepts, models, algorithms, techniques, etc. should be dealt with first. Then, collect various tools in your selected topic. Among others, you should consider evaluation criteria, comparison elements, features, limitations, reviews, and experimentation with the tools.

What to submit

Send a page by email. The page contains:

- The name, ID, Course Number and name.
 - Topic title and the area
 - A paragraph describing the topic.
 - A paragraph indicating the motivation
- A presentation of your submission will be done in class after submission. Describe the topic and why you selected it.

PHASE 2: BIBLIOGRAPHY

•A list of all references related to your topic.

What to submit

- A CD of all references with links to their contents in the CD.
- A presentation of your submission will be done in class after submission. Describe how you found the references and why you chose them.

PHASE 3: REFERENCES EVALUATION

Evaluate each reference according to the guidelines given in class. You will obtain two lists: Accepted and rejected.

What to submit

- Submit a document of the reference lists, and their evaluation (reason(s) for acceptance or rejection).



- A presentation of your submission will be done in class after submission. Select two references of the accepted and two of the rejected and present their evaluations in class.

PHASE 4: ANNOTATED BIBLIOGRAPHY

- Cite each accepted reference followed by its annotation as will be explained in class.

What to submit

A Document with the annotated Bibliography.

A presentation of your submission will be done in class after submission. Select two references and present its annotations.

PHASE 5: LITERATURE REVIEW

- Conduct a Literature Review of your chosen topic, as explained in class and in other supplementary material to be given later.

What to submit

- A Final Report on a CD and a printed document.
- The final report consists of: the literature review and your findings including research questions, analysis and results of survey conducted, implementation if any, comparative study.
- A presentation of your report will be held in class. Presentations will be held in the last two lectures of the semester

USEFUL MATERIAL:

“Research Methods Course guidelines Document”, by Prof. Hassan

Mathkour: <http://faculty.ksu.edu.sa/mathkour/Pages/csc595material.aspx>