DEPARTMENT OF COMPUTER SCIENCE GRADUATE STUDENT HANDBOOK 2024-2025

Contents

UNIVERSITY MISSION STATEMENT

Midwestern State University is a leading public liberal arts university committed to providing students with rigorous undergraduate and graduate education in the liberal arts and the professions. Through an emphasis upon teaching, augmented by the opportunity for students to engage in research and creative activities alongside faculty and to participate in co-curricular and service programs, Midwestern State prepares its graduates to embark upon their careers or pursue advanced study. The university's undergraduate education is based upon a comprehensive arts and sciences core curriculum. The understanding that students gain of themselves, others, and the social and natural world prepares them to contribute constructively to society through their work and through their private lives.

McCoy College of Science, Mathematics and Engineering Mission Statement

The mission of the McCoy College of Science, Mathematics and Engineering is to provide students with knowledge and skills for life-long learning, to help them understand the world in which they live, and to apply engineering, mathematical, and scientific advancements for the benefit of future generations. The McCoy College of Science, Mathematics and Engineering seeks to cultivate high quality teaching, research and scholarship to create new knowledge of the world and connect to STEM initiatives in the local, state and international communities.

Department of Computer Science Graduate Program Mission Statement

The mission of the Master of Science degree in Computer Science is to provide a source of knowledge to experienced professionals, an advancement of knowledge to recent graduates of computer science programs, and the opportunity for career change to those with undergraduate preparation in fields other than computing. The degree provides classroom, laboratory, and discovery experiences which emphasize the theory, application, and contemporary research in the computing sciences.

COMPUTER SCIENCE FACULTY

Dr. Catherine Stringfellow, Professor   BO 124J   x4578
Department Chair
NTASC Conference Coordinator
Software Engineering & Software Quality
Human Computer Interaction
Computer Graphics
Computer Science Education

Dr. Nelson Passos, Professor   BO 124L   x4129
Graduate Studies Coordinator
Instruction Level Parallelism
High-Level Synthesis
Computer and Network Security

Dr. Eduardo Colmenares, Associate Professor   BO 124B   x4183
Scholarships and Internship Coordinator
High Performance Computing
GPU and Hybrid Programming
Parallel and Distributed Systems
Scientific Computing

Dr. Tina Johnson, Professor   BO 124G   x6201
NTASC Conference Coordinator
Tech for Teens MSU Liaison
Computational Epidemiology
Computer Science Education

Dr. Terry Griffin, Associate Professor   BO 124F   x4439
Data Mining
Spatial Databases
Internet Programming

Dr. Lopamudra Roychoudhuri, Associate Professor BO 124D   x4191
Cyber Security
Networks
Database Management

Prof. Mika Morgan, Instructor   BO 124E   x4189
Computer Programming
Introduction to Computers
Natural Language Processing

COMPUTER SCIENCE FACILITIES

The Computer Science Department has offices and laboratories in the Bolin Science Hall (BO). All buildings are opened by university custodians on weekdays at 7:30 a.m. Most buildings will be open until 9:30 p.m. on weekdays. The computer labs open from 8:00 AM to 5:00 PM when a lab student supervisor is present.

Computer Programming Lab

Located in Bolin Science Hall, room 115, the computer programming lab consists of several personal computers running Windows operating system. These machines have restricted usability and security protections limiting its use to program development, office application and some other minor needs. This lab is supervised by a graduate student and usually has a tutor available for introductory programming classes.

Computer Science Research Lab

Located in Bolin Science Hall, room 121, the computer forensics lab consists of an advanced computer forensics system and high-performance computer systems. The Turing computer cluster may be accessed remotely in this lab and is configured with advanced processors, which are used in high performance computing classes. Turing is now located in the McCullough Building. The Apples are equipped with software to allow mobile programming development. This lab is also used by junior/senior level students in software engineering classes.

Computer Applications Lab

Located in Bolin Science Hall, room 103, the computer applications lab consists of several personal computers running Windows operating system. These machines have restricted usability and security protections limiting its use to program development, office application and some other minor needs. This lab is also utilized as a classroom, making it unavailable at class times.

Computer Research Lab

Located in Bolin Science Hall, room 133, the computer research lab has restricted access and is used as basis for new research studies involving hardware and software.

GRADUATE SCHOLARSHIP AND ASSISTANTSHIP POLICIES AND PROCEDURES

The Computer Science Program at Midwestern State University coordinates the distribution of two graduate scholarship awards: a Graduate Merit Scholarship carrying a $ 1,000.00 award, payable as $ 500 for the fall term and $ 500 for the spring semester, and the Tom C. White Scholarship, which carries an award in the range from $ 1,000.00 to $2,000.00 per year, payable in two installments, in the fall term and the spring semester. Students can only be awarded one of these scholarships in a single semester. These scholarships are not automatically renewed and require a yearly re-application. Awards are contingent on funds availability. Scholarships will be limited to a maximum of 3 consecutive years.

Criteria for Receiving a Computer Science Scholarship

1. Students are required to apply to these scholarships using the Graduate School Merit scholarship application form and/or the Tom C. White scholarship form.
2. The selection process requires the student applying for the scholarship to have an overall graduate GPA of at least 3.0.
3. The student must make satisfactory progress towards the computer science degree. This requires the student to complete successfully 6 hours of required courses each long semester (minimum enrollment to be eligible).
4. In case the student becomes ineligible for the scholarship at the beginning of the spring semester, the second installment will be cancelled.
5. Students involved in academic misconduct (cheating, plagiarizing, etc.) are not eligible for scholarship awards.

Graduate Assistantship Policies and Procedures

The graduate assistantship award requires the student to perform duties for the department as assigned by the graduate coordinator, department chair or supervising faculty. Assistantships are not automatically renewed and are limited to a period of three consecutive years. All awards are contingent upon availability of funds. Awards are made based on a competitive basis, where the most important selection criteria points are:
1. Professionalism on performing individual duties, including attendance, departmental participation, volunteerism, communication with supervisors and peers.
2. Making satisfactory progress towards the computer science degree. This requires the student to complete successfully 6 hours of required courses each long semester.
3. Students involved in academic misconduct (cheating, plagiarizing, etc.) are not eligible for assistantship awards.
4. Awards are for one or two semesters duration and may be renewed as long as the students remain in good academic standing in the computer science program (GPA greater or equal 3.0) and has shown good work performance.
5. Awardees are required to attend a meeting in the week before the start of classes and must be available to work until the last day of final exams.
6. Awards may be cancelled at any time, at the discretion of the department chair or graduate coordinator, if the student fails to perform his duties in a professional way. This includes any violation of the assignment rules, including unjustified absence, lack of cooperation with the department staff or faculty, poor attendance, frequent tardiness, etc.
7. Awards are made only to students who are enrolled for full time study in disciplines required for degree completion (minimum 6 credits, maximum of 11 credits).
8. Participation in departmental activities, including becoming a member of the local chapter of the ACM (Association for Computing Machinery).

Stipends are paid in equal monthly installments over the period of appointment. Tuition waivers and scholarships result from a different selection process and are not associated with a graduate assistantship.

CURRICULUM INFORMATION

Entering students may be required to take computer science placement tests. Students with non-computer science undergraduate degrees or poor records in their previous degree may be required to take leveling classes. The set of leveling classes include:

> CMPS 1044 – Computer Science I
> CMPS 1063 – Data Structures and Abstract Data Types
> CMPS 2084 – Introduction to Computer Architecture
> CMPS 2433 – Discrete Structures and Analysis
> CMPS 3013 – Advanced Structures and Algorithms
> ENGL 1143 – Academic Research & Writing
> MATH 1533 – Pre-Calculus
> MATH 1634 – Calculus I

The purpose of the leveling courses is to ensure a broad computer science background (close to an undergraduate minor) prior to entering the graduate program. The minimum grade required in leveling classes is C. Exceptions will be decided by a committee consisting of the graduate coordinator and two of the graduate faculty. While taking leveling classes, students may take core and elective graduate courses that do not have those leveling classes as pre-requirements. No waiver will be approved without concrete evidence of knowledge.

All M.S. students MUST complete the following "core" courses (15 hours):
CMPS 5113 – Advanced Programming Languages Concepts
CMPS 5243 – Algorithm Analysis
CMPS 5153 – Advanced Software Engineering
CMPS 5133 – Advanced Computer Architecture
CMPS 5143 – Advanced Operating Systems

Students may choose one of two possible options:

1. A coursework only option, which requires 33 credits for graduation, 15 of them from the core classes and 18 credits of electives.
2. A research option, which requires the student to complete 30 credits, 15 of them from the core classes, 12 from elective courses. Three credit hours of CMPS 6901 taken in three semesters (only one summer) to support a file paper research.

Transfer credits.

A maximum of six hours may be transferred from another university. Non-computer science subjects are not accepted towards degree requirements. Transfer hours require a formal request from the student and approval from the graduate school.

Academic Dishonesty Policy (extracted from MSU Student Handbook – Part II)

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Rights and Responsibilities.

      a. The term "cheating" includes, but is not limited to:

            (1) use of any unauthorized assistance in taking quizzes, tests, or examinations;

            (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or

            (3) the acquisition without permissions, of tests or other academic material belonging to a member of the university, faculty, or staff.

      b. The term "plagiarism" includes, but is not limited to, the use by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgement. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.

      c. The term "collusion" means collaboration with another person in preparing work offered for credit if that collaboration is not authorized by the faculty member in charge.

Computer Science Program Academic Dishonesty Procedure

.The Department of Computer Science has adopted the following policy related to academic misconduct. The policy will be applied to all submission of work for credit as determined by the instructor of the course, e.g., assignments, quizzes and exams. (See below for link to MSU definitions.)

- 1st instance of cheating in the program: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. If the final grade in the course, does not result in a one letter grade reduction, the student will receive a one letter grade reduction in course.
- Further instances of cheating in any course within the program: The student will receive a grade of F in the course & be removed from the course.
- All instances of cheating will be reported to the Department Chair, the MCOSME Dean, the Dean of Graduate Students, if a graduate student, and the Office of Rights and Responsibilities, who may decide at their own discretion to impose a stiffer sanction based on knowledge of other instances of cheating at MSU Texas.

The MCOSME website provides information on the process for grade appeals or appeals of academic honesty sanctions. The Grade Appeal Checklist provides the timeline for appealing from the instructor to the next in line (dean of the college). The Academic Honesty Checklist describes the timeline for appealing from the instructor to the next in line (chair of department).

Graduate Student Academic Performance Standards / Grading System

This is a list of important factors on the grading system published in the graduate catalog. Those that would like to have more detailed information must read the university catalog. Graduate degree-seeking students must maintain a grade point average (GPA) of at least 3.0 to be in good academic standing. Failing to achieve such a grade will result in a probationary status as described below.

Probation: If a student's cumulative GPA falls below 3.0, the student will be placed on probation.
1. The first semester a student is placed on probation he/she must attain a 3.0 GPA for the semester.
2. If the student earns a 3.0 GPA during his/her first semester on probation but is not able to raise his/her cumulative GPA to 3.0, the student is allowed to stay on probation for another semester.
3. If a student fails to raise his/her cumulative GPA to 3.0 by the end of the second semester on probation, the student may be dismissed from the program.
4. If D or F grades are received while on probation, the student will be dismissed from the program.
5. Students on probation may enroll for a maximum of 9 credit hours per semester.
6. Students on probation should consult with the graduate coordinator about requirements to return to good academic standing.

Dismissal: A student who has less than a 3.0 semester grade point average for two consecutive semesters may be dismissed. Students must have a cumulative 3.0 GPA as well as a 3.0 GPA in the computer science field for graduation. Students may appeal dismissal to a departmental review committee. The review committee may include a representative of the Graduate School upon request of the student.

GRADUATION REQUIREMENTS

In order to fulfill all requirements for graduations, students must

- **Complete required number of credits with a cumulative and CMPS GPA greater or equal 3.0**
- **Apply for graduation in the semester before the expected graduation date**
- Present and submit a file paper at least two weeks before graduation for those in the 30 credit option.

GRADUATE RESEARCH PAPER FORMAT

PAPER FORMAT

The format of term papers and the file paper with regard to content is based upon the style used in the ACM publication *Communications of the ACM* and guidelines for presentation and typing are specified by the department. Students are strongly encouraged to develop a familiarity with the editorial style and format of *Communications* prior to **manuscript preparation.**

The paper consists of four parts:

1. Title Page - a standardized page for specifying the title and author of the paper. A signature page is required for the file paper. (See attached example).

2. Abstract - a brief, concise summary of the paper as described in the suggested outline. It must be printed on a page by itself.

3. The text of the paper.

4. References

Format of References, Citations, Tables, etc.

1. References
   A list of all publications (articles, texts, monographs, etc.) must be supplied as the last section of the paper. Each article or paper used must be listed alphabetically by last name of the author and the list must be numbered sequentially. The following are examples of the format for various types of entries in the list.

   Journal:
   Parker, R., Lotus copyright protection is turning into a feeding frenzy, *Infoworld*, 12, 28 (Jul. 1990), 42-49.

   Book:
   Hoffman, W. and Moore, J., Eds. *Ethics and the Management of Computer Technology*, Oelgeschlager, Gunn and Hain, Cambridge, Mass., 1982.

Proceedings:
Rumbaugh, J., Controlling propagation of operations using attributes on Relations. *Proceedings of OOPSLA 86* (Sept. 1986., Portland, OR), 405-416.

Articles Which Have Established Citation Pages at ACM (Electronically published articles):
Smith, J., An algorithm for the traveling milkman problem, Journal of the ACM 54 (June 1997), 234-245. (http://www.acm.org/jacm/1997/SmithAlgorithm/)

2. Citations

Whenever material from a publication is used in the paper it must be followed by a citation which is   simply the number of the reference in the list of references enclosed in square brackets (for example, a reference to the third article listed in the list of references would contain the citation [3].) Multiple citation numbers can be incorporated within one citation when required (for example, references to the fourth, eighth, and eleventh entries in the reference list would appear as [4, 8, 11]).

3. Tables

Tables of data must appear *after* the first reference to them. They may appear on a separate page, but the page must follow the page on which the first reference is made.   A reference may be incorporated into the text as part of a sentence, for example, "Table 1 contains..." or may appear as a parenthetical phrase, for example, "(See Table 1.)".   Tables must be numbered consecutively and have a title which appears centered above the table as shown in the example. Any table not original with the author must have a citation that references the source document. Do not refer to the physical location of the table, e.g., "The table below …"

Table 1. Models that can be applied on defect reporting tools [5].

Model	Buggit	Bugzilla	Roundup	Mantis	Bugtrack	IMS	BugsOnline
Capture - Recapture 1		√		√			
Capture- Recapture 2	√	√			√		√
SRGM	√	√		√	√	√	√

4. Figures

Figures and illustrations must appear *after* the first reference to them. They may appear on a separate page, but the page must follow the page on which the first reference is made. Several figures may appear on the same separate page, but they must follow the first reference made to them in the text. A reference to a figure may be incorporated into the text as part of a sentence, for example, "Figure 1 shows..." or may appear as a parenthetical phrase, for example, "(See Figure 1.)". Figures must be numbered consecutively and have a title which

appears centered below the figure as shown in the example. Any figure or illustration not original with the author must have a citation that references the source document. Do not refer to the physical location of the figure, e.g., "The figure below …"
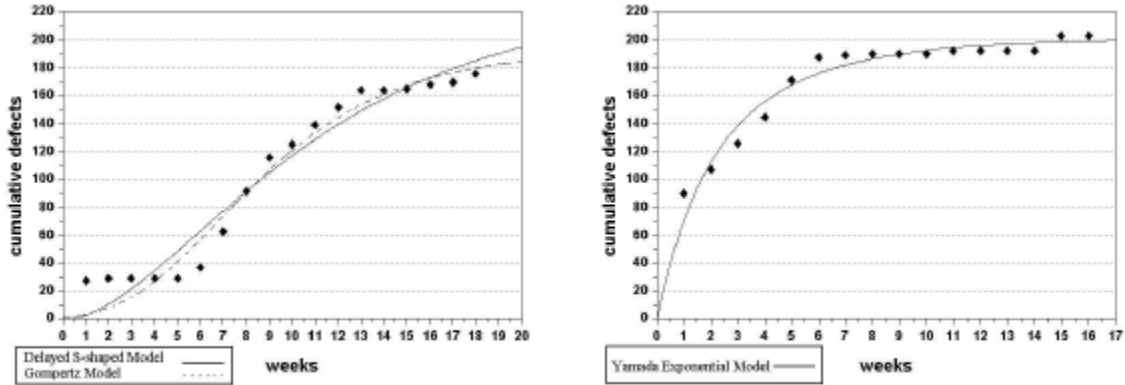

Figure 1. SRGM models not rejected in a) Release 1 and b) Release 2[1].

Text of the Paper - Structure

1. The title page must be the first page of the paper.

2. The abstract must be typed on a page by itself and it must appear immediately following the title page and immediately preceding the first page of the text of the paper. It will not have a page number.

3. The paper should be developed in sections with appropriate headings for each section. Because the paper is relatively short, section numbers are optional. Section headings should be left justified and typed in boldface upper and lower case letters on lines by themselves. Subsections should follow a similar format, but should be indented to show subordination of the text to the more inclusive topic of the section in which it appears. For example, discussion of AVL trees and the operations used to rebalance the trees would appear as:

> **AVL Trees**
>   **. . .**
>   **Single Left Rotation**
>   **. . .**
>   **Single Right Rotation**
>   **. . .**

4. All pages of the paper (except the abstract) must be numbered. The number for page one is centered in the bottom margin, one double spaced line below the last line of text. All subsequent pages are numbered in the top margin, one double spaced line above the first line of text and flush with the right margin.

Text of the Paper - Presentation Format

1.　　　The paper must be prepared using a word processor. WordPerfect and Microsoft Word provide all the features producing all the required typographical features of the paper.

2.　　　Margins - All margins must be one inch.

3.　　　The text must be double-spaced.

4.　　　The text must be typed in 12 point font. The text must be typed in one of the following styles:
   - Times New Roman - This is an example of Times New Roman
   - Arial -This is an example of Arial

5.　　　Right margins of the text may be uneven or may be flush. If flush right margins are used, proportional spacing must be used to assure that the appearance of the text is regular (horizontal adjustment of characters and/or inserted spaces for the purpose of achieving a flush right margin should not be obvious).

6.　　　Figures and illustrations should be incorporated into the text electronically (scan images and graphics into an electronically readable form and import them into the paper). If any figures must be developed in original form, use a professional graphics artist or draftsman or utilize a computer graphics package.

SUGGESTED OUTLINE

The paper is to be written based on the instructions of the course instructor (term paper) or the research supervisor (file paper). A suggestion outline is given below.

Abstract
Give a brief summary of the intent of the paper and a description of the major concepts, approaches, algorithms, and/or significance of the paper. The abstract is limited to one paragraph of at most ten sentences.

Introduction, Motivation and Purpose

This section introduces the topic and the purpose of the paper. It must address:

- Why is the topic important?
- What is the past and future for this topic? (Why did you choose this topic?)
- What is the purpose of the research in this topic area? There must be a specific, well-reasoned goal for the paper which must be clearly and concisely stated in this section.
- A brief introduction of the type of paper (survey, comparative study, analysis, algorithms developed, etc.) should be described.

Overview of Previous Work
Perform a literature search to collect everything written on the topic. Concentrate on the most current research, but do not ignore foundational or seminal papers in the area. Summarize the significant material that pertains primarily to your topic. Keep in mind that the references to research should be kept narrowly focused and directed to the primary goal of your paper.

Presentation and Discussion

This section is the most significant part of the paper. It presents the details of the approach, methodology, algorithm, analysis, comparative study, result, etc.

Conclusion
Summarize and evaluate the paper in this section. Specifically, draw substantive conclusions from the paper. Evaluate the results and comment on the positive points revealed in the study and identify and comment on any negative results. Identify possibilities for future studies or research which you may have discovered.

References
Papers must come from refereed journals or computer magazines and must follow the format specified. The number of references required is to be determined by the course instructor or the research supervisor.

Title

by

Name

APPROVED:

_____
Chair, Graduate Advisory Committee

_____
Member

_____
Member

_____
Program Chair

_____
Date of Approval

Title

A File Paper

Presented to

Department of Computer Science

Midwestern State University

In Partial Fulfillment

Of the Requirements of the Degree

Master of Science

By

Your Legal Name

Month Year

MINIMUM REQUIREMENTS FOR FILE PAPER FOR MASTER'S DEGREE

1. A <u>neatly typed</u> original with a title page.

2. <u>Correct Grammar</u>: Sentence structure, usage, punctuation, capitalization, spelling, etc.

3. <u>Proper Acknowledgement</u> of sources.

   A. <u>What does NOT Require Documentation</u>

   It is not necessary to cite/note what is writer's own material or belongs to the public domain – in thought, interpretation or style.

   1. <u>The Writer's Own Material</u>

   It is not necessary to document independent thoughts and experiences. Examples: A conclusion drawn from watching software engineers at a code inspection; tables and diagrams constructed from information gathered. (If the information in the table comes from somebody else, you must credit the source.)

   2. <u>Public Domain</u>

   It is not necessary to document common knowledge.

   a. Information known by most people. (The Apple Macintosh was released in 1984.)
   b. Common proverbs and expressions. ("Garbage in is garbage out.")
   c. Information used or assumed by most sources on your subject. (The standard definition of operating systems.)
   d. General conclusions that anybody could reach. (Source code should be well documented.)

   NOTE: If not sure what constitutes common knowledge, check with the research supervisor.

   B. <u>Citations</u>

   It is necessary to credit the source of all material that may be considered as belonging to somebody else either in substance or style. The source must be credited EVEN IF paraphrased it and or in writer's own words.