Mathematics and Computer Science Writing Plan

The purpose of this document is to outline expectations for Writing Emphasis courses within mathematics. It identifies what the Department of Mathematical Sciences values in effective writing, the types of skills we expect our students to develop, and the types of assignments we tend to use in meeting these desired outcomes.

Values

Writing in the mathematics discipline requires the ability to clearly and effectively convey ideas and work to a variety of audiences, ranging from academic experts to the general public. Our students need to be able to communicate their findings with all of them. To do so, it is essential that their written documents are organized and detailed. Good writing in mathematics has the following qualities:

- Use of clear and logical explanations
- Use of concise and complete statements
- Proper use of appropriate structures (equations, diagrams, etc.)
- Proper and consistent use of terminology and notation
- Awareness of audience
- Accuracy and precision

Types of Texts We Create

In order for our students to develop a framework for writing in mathematics, they must be given the opportunity to process their ideas before, during, and after new learning takes place.[1] Not only will students read examples of written mathematics, they will also learn to create these texts:

- Mathematical proofs
- Reports of findings for mathematical applications
- Research and survey papers

Skill Development

Because writing is a process, it is important to provide students with multiple opportunities to create mathematical texts. To do so, students will engage in the following activities to improve their writing:

- Revision
- Reading examples of good and bad writing
- Providing peer feedback during written presentations
- Frequent writing of mathematical proofs
- Research (original and/or survey)

[1] https://www.michigan.gov/documents/mde/Writing_to_Learn_Mathematics_306722_7.pdf

Courses Focused on Writing

The following courses involve reading and creating texts within mathematics through exercises, projects, papers, and presentations:

- MTH-215 Foundations of Advanced Mathematics
- MTH-305 Advanced Geometry
- MTH-325 Differential Equations
- MTH-445 Complex Analysis
- MTH-455 Mathematical Modeling
- MTH-484 History of Mathematics

Writing Plan for Computer Science

The purpose of this document is to outline expectations for Writing Emphasis courses within Computer Science. It identifies what the Department of Mathematical Sciences values in effective writing, the types of skills we expect our students to develop, and the types of assignments we tend to use in meeting these desired outcomes.

Values

Writing in computer science requires the ability to clearly and effectively convey ideas and work to a variety of audiences, ranging from academic experts to the general public. Our students need to be able to communicate their findings with all of them. To do so, it is essential that their written documents are organized and detailed. Good writing in computer science has the following qualities:

- Proper use of technical descriptions
- Use of concise and complete statements
- Proper use of appropriate structures (sample code, lists, diagrams, etc.)
- Proper and consistent use of terminology and notation
- Awareness of audience
- Accuracy and precision

Types of Texts We Create

In order for our students to develop a framework for writing in computer science, they must be given the opportunity to process their ideas before, during, and after new learning takes place.[2] Not only will students read examples in computer science, they will also learn to create these texts:

- Software specifications
- Usability study reports
- Data and recommendations
- Research and survey papers

Skill Development

Because writing is a process, it is important to provide students with multiple opportunities to create texts in computer science. To do so, students will engage in the following activities to improve their writing:

- Revision
- Reading examples of good and bad writing
- Frequent writing of computer science documents
- Research (original and/or survey)

[2] https://www.michigan.gov/documents/mde/Writing_to_Learn_Mathematics_306722_7.pdf

Courses Focused on Writing

The following courses involve reading and creating texts within computer science through design journals, projects, and software requirements specification documents.

- CS-390 Software Engineering
- CS-452 Interactive Systems Design