



TECHNOLOGY AND COMMUNICATION IN MATHEMATICS

Instructor: Dr. Ianna West

Office: Peltier 106-B

Online Office Hours: Tuesdays & Thursdays 10:30AM – 1:00PM

You may also reach me during my Nicholls' on-campus office hours on Mondays, Wednesdays and Fridays from 10:00 – 11:50AM & 12:50 – 2:20PM. You may reach me during these hours by phone or email.

Email: ianna.west@nicholls.edu

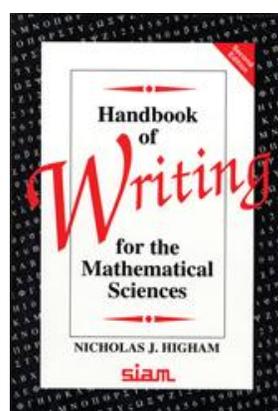
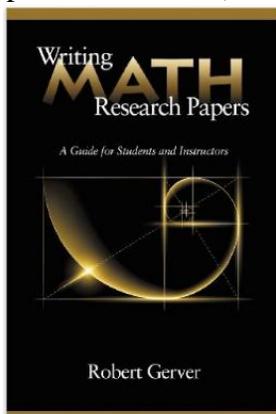
Office Phone: 985-448-4394

Moodle: <http://moodle.nicholls.edu/moodle/>

Section: WWP

Location: Online

Textbooks: *Writing Math Research Papers; A Guide for Students and Instructors 3rd Edition* by Robert Gerver & *Handbook of Writing for the Mathematical Sciences 2nd Edition* by Nicholas J. Higham (books may be purchased online).



Catalog Description:

MATH 584. Technology and Communication in Mathematics. Prerequisite: MATH 509. Capstone course normally taken in final semester of graduate study. Application of a variety of strategies and use of multiple sources of information and technology to solve problems. Students draw on previous course work as they conduct investigations and present mathematical ideas orally, in writing, and by demonstration. Includes formal and informal presentations in groups or individually. Presentations may occur at off-campus sites.

Student Outcome Objectives:

Students will be able to:

1. Create and deliver technology-based presentation using current technology in the investigation of problems and the presentation of results: gathering and plotting data, performing calculations, creating documents, creating graphics and/or diagrams.
2. Draw upon previous coursework to model and investigate problems.
3. Investigate unexplored problems, and write a research paper on a topic from previous coursework.
4. Construct and apply structures in one or more of the areas of algebra, number theory, analysis, geometry, probability, statistics, mathematical modeling or discrete mathematics or any other area that he or she has taken while in the graduate program.
5. Create and give various representations and models to organize, record, and communicate mathematical ideas by consolidating their mathematical thinking through communication, analyze and evaluate the mathematical strategies of others.

Course Hardware and Software Requirements

Access to a computer with internet is required. Microsoft Word is required. Students will be required to use software such as Mathtype or the equation editor feature of Microsoft Word to type mathematics. Student should have access to PowerPoint or some other presentation program, and a CAS (computer algebra system) such as Maple, Matlab or Mathematica. The student may use Microsoft Excel if it is capable of performing the desired computations and/or graphics required. Also, students must have access of materials from their previous coursework in the Nicholls' graduate program.

The course will be conducted via internet using Moodle, Nicholls' email, and the free web-based conferencing tool Adobe Connect. Course documents, assignments, grades and all other materials pertaining to the course will be delivered through the online course management system Moodle.

Moodle and the student's Nicholls email account must be used for all written communication between instructor and student. On the Moodle course homepage, click on the "COURSE INFORMATION AND RESOURCES" tab to view the instructions on how you **must** properly label and use emails. Student must be able to open a pdf file using Acrobat Reader or some other pdf reader which may be downloaded free from the internet. Student must know how to upload a file. If the students are not familiar with one or more of the software and/or web-based tools mentioned, then students should have the ability to familiarize themselves with these necessary web-based tools and/or software either by exploration or tutorials. The links to some important websites and/or tutorials are given below.

The URL for the university's distance learning website is

<http://www.nicholls.edu/distance/> .

FAQS about internet courses can be viewed at the website

<http://www.nicholls.edu/distance/faqs/> .

The FAQS website will give student insight as to what they should expect from an online course, as well as answer many frequently asked questions.

A Moodle Tutorial can be viewed at the website

<http://www.nicholls.edu/distance/moodle-tutorial/> .

Course Content, Methods of Evaluation and Point Distribution

Module Folders

I will post learning objectives, learning activities and assignments on Moodle according to the Course Calendar. There is a link to access the Course Calendar in the headerblock section of the Moodle course homepage. The Course Calendar is also the last two pages of this Syllabus.

Research Paper

You will be required to choose a topic from previous coursework or related topics, investigate unexplored (may be unexplored to the student) areas of the topic and write a ten to fifteen page research paper. You must use Microsoft Word to write the paper. You will be required to utilize technology within the paper to perform calculations and create graphics, tables, diagrams, hyperlinks, etc. You may use software, such as Microsoft Excel, or a CAS such as Maple, Matlab, or Mathematica. Details including formatting and a grading rubric will be posted on the Moodle course homepage.

Scholarly Research Summaries

You must examine scholarly articles, books and other sources (e.g. dissertations, conference proceedings) relevant to your area of research, and then provide two descriptive summaries and critical evaluations of one or more of the works. You may combine more than one work in a given summary. Do not write your summaries from websites for which the legitimacy cannot be verified.

You must use APA formatting style to write the summaries. A good resource to use for APA formatting is

<https://owl.english.purdue.edu/owl/resource/560/01/> .

Your area of research should coincide with topics from courses taken in the Nicholls' graduate program. Instructions will be posted on the Moodle course homepage.

You should utilize the resources from the Ellender Memorial Library on the campus of Nicholls State University. There are several resources that may be used by distance learners. Links and descriptions of useful resources have been posted on the Moodle course homepage.

Research Presentation

You will be required to present your research paper online to the instructor and several members of the class using Adobe Connect (a free online conference website) utilizing a presentation program such as PowerPoint. The presentation must contain evidence of computations made using technology. It must also contain at least two of the following: graphics, tables, diagrams, hyperlinks. Details and a grading rubric will be provided on Moodle.

Presentation Participations

You will be required to participate in three of your classmate's presentations. Each participant will be required to ask at least three questions during or immediately following each presentation. I will send you a link with a schedule of dates and times at the beginning of November from which to choose. From your choices, I will create a schedule for everyone in the class. The presentations will be conducted during final exams beginning on Tuesday, December 5, 2017 and ending on Wednesday, December 13, 2017.

Book and Chapter Summaries

For your first reading assignment, you will be required to read the two textbooks in their entirety, and then write a two to three page summary of each book.

Then you will be required to write a summary of each chapter listed in the modules since the sections from the textbooks will guide you through the entire process of finding a topic, documenting your research, writing your paper, editing your paper, creating your presentation, and then presenting your paper. For each module, you will be required to write a summary based on what you have learned from the chapters and how the information can be applied to your research. Furthermore, you will be asked specific questions from each chapter within the corresponding modules. The instructions for the book and chapter summaries are available on the Moodle course homepage. A brief description of the books are given below:

Writing Math Research Papers; A Guide for Students and Instructors is an easy to read book that can be used by both students and instructors. Some of you are high school teachers, and you may find that some of the ideas in the books may be used in your classes to help teach your students how to prepare for a mathematics research paper as well as ideas on improving your teaching methodology.

Handbook of Writing for the Mathematical Sciences is intended for graduate students, and is a great resource for guiding you in writing a graduate-level research paper. Both books are good guidebooks to writing a mathematics research paper and preparing a presentation.

Research Journal

Chapter 7 of the book *Writing Math Research Papers; A Guide for Students and Instructors* gives a detailed description of how to best organize and maintain a research journal. You will be required to keep a journal as described in Chapter 7. The goal of the research journal assignment is to help you keep track of the main components of your research, to help you make a decision on a topic as well as keep the information organized.

Discussion Board Forums

The first forum is for the purpose of introducing yourself to the class, and the last forum will be a survey of the course. Furthermore, you will be required to answer questions pertaining to the readings from select chapters in discussion forums that are contained within the modules.

Late Submission of any Assignment or Discussion Forum

Due dates are on the Course Calendar. The due dates will also be posted in each module. Without prior permission, if you submit an assignment and/or forum late, then you will be penalized. If you need more time on a particular assignment, then you must contact me in advance to get permission to avoid a penalty. Without permission, if you submit a typed assignment or post on a forum after the deadline, but before the assignment has been graded, then you will be **penalized 50%**.

Once I have graded an assignment or forum, I will not accept late submissions. You will receive a grade of zero.

I am very aware that many of you have jobs and families, and unexpected things may occur during the semester; therefore, it is very important to stay in contact with me when you will be late on an assignment. Do not wait until after the assignment is due to ask for an extension.

Point Distribution for Semester Grade

Grade will be calculated on a ten point grading scale 90-100 A, 80-89 B, 70-79 C, 60-69 D, below 60 F.

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|--|--------------------------|---|
| Research paper | 250 points | |
| Research Summaries (two @ 80 points each) | 160 points | |
| Research Presentation | 100 points | |
| Presentation Participations (three @ 20 points each) | 60 points | ** Point values may be modified ** |
| Book Summaries (two @ 30 points each) | 60 points | |
| Research Journal | 80 points | |
| Chapter Summaries (sixteen @ 5 points each) | 80 points | |
| Discussion Forums (six @ 5 points each) | 30 points | |
| <i>Total points</i> | <i>820 points</i> | |

Policies, Procedures and Services

Attendance Policy

Participation in activities is required where an electronic record which clearly indicates time and date activity was submitted. For financial aid purposes, student must complete at least one activity, which is equivalent to having attended at least one class.

Behavioral Policy

Students must **at no time** be disrespectful toward the instructor. Students must always respect the rights of classmates. Students must behave in a professional manner at all times. Failure to act in an appropriate manner will not be tolerated.

Academic Dishonesty Policy

Cheating will not be tolerated. Sanctions for academic cheating, plagiarism, and forgery of academic documents including signing another's name (Sec 1.9) are those outlined in the *Code of Student Conduct* handbook. You may access a copy of the handbook by clicking on the following link:

http://www.nicholls.edu/documents/student_life/code_of_conduct.pdf .

Multiple cheating offenses: Section Five of the Code of Student Conduct, 'Academic Dishonesty and Disruptive Behavior,' includes a requirement that faculty file a charge complaint statement with their respective dean whenever a student is confronted or disciplined for cheating. The Office of Academic Affairs will maintain these records, and any student confronted and/or disciplined for multiple offenses of academic dishonesty will be brought before the Academic Affairs Integrity Committee for further review and potential sanctions. Please read the Code of Student Conduct for further details regarding this policy."

Academic Grievances

The proper procedure for filing grade appeals or grievances related to academic matters is listed in Section 5 of the *Code of Student Conduct* handbook.

Assistance with Studying and Assignments

- **The Tutoring Center** at 143 Peltier Hall. Call [985-448-4100](tel:985-448-4100), email: tutoring@nicholls.edu, or visit <http://www.nicholls.edu/academic-enhancement/>
- **The Writing Center** at 144 Peltier Hall. Call [985-448-4100](tel:985-448-4100), email: tutoring@nicholls.edu, or visit <http://www.nicholls.edu/academic-enhancement/>
- **Online Tutoring through Moodle.** Look for the Brainfuse log-in link on the home page, <http://moodle2.nicholls.edu/moodle/>

Student Access Center (SAC): If you have a documented disability that requires assistance, you will need to register with the Student Access Center for coordination of our academic accommodations. The Student Access Center is located in 158-A Shaver Gym. The phone number is 985- 448-4430 (TDD 449-7002).

Continued Learning following an Extreme Emergency:

In order to make continued learning possible following an extreme emergency, **students are responsible for:**

- reading regular emergency notifications on the Nicholls website;
- knowing how to use and access Moodle (or university designated electronic delivery system);
- being familiar with emergency guidelines;
- evacuating textbooks and other course materials;
- knowing their Moodle (or designated system) student login and password;
- contacting faculty regarding their intentions for completing the course.

Faculty are responsible for:

- their development in the use of the Moodle (or designated) software;
- having a plan for continuing their courses using only Moodle and email;
- continuing their course in whatever way suits the completion of the course best, and being creative in the continuation of these courses;
- making adjustments or compensations to a student's progress in special programs with labs, clinical sequences or the like only in the immediate semester following the emergency.

Holidays and Other Important Dates

Labor Day: September 4th

Fall Break #1: September 25th and 26th

Advising Begins: October 16th

Fall Break #2: October 19th and October 20th

Final day to Drop to receive W: October 27th

Registration Begins: November 6th

Thanksgiving Holidays: November 20st – 24th

Last Day of Class: December 6th

Final Exams: December 6th – 13th

****The last day to drop this course with a "W" is Friday, October 27, 2017****

(Tentative Course Calendar dates may be changed during semester)

In the following outline, Book 1 WMRP refers to *Writing Math Research Papers; A Guide for Students and Instructors* and Book 2 HWMS refers to *Handbook of Writing for the Mathematical Sciences*.

| Module Folders | Chapters | Post Date | Due by 11:59 PM on the given date |
|-----------------|--|-----------|-----------------------------------|
| <i>Module 1</i> | <i>Read both books.</i> <i>Book 1 (WMRP)</i> <i>Book 2 (HWMS)</i> | 8/22/17 | 9/05/17 |
| HOLIDAY | Labor Day September 4th | | |
| " | Book 1 WMRP <i>Chapter 1</i> "Mathematics: Shouting Questions and Whispering Answers" <i>Chapter 2</i> "Problem Solving: A Prerequisite for Research" <i>Chapter 3</i> "Writing Mathematics" | " | 9/06/17 |
| <i>Module 2</i> | Book 1 WMRP <i>Chapter 4</i> "The Math Annotation Project" <i>Chapter 5</i> "Conjectures, Theorems, and Proofs" Book 2 HWMS <i>Chapter 3</i> "Mathematical Writing" | 9/06/17 | 9/11/17 |
| <i>Module 3</i> | Book 1 WMRP <i>Chapter 6</i> "Finding a Topic" <i>Chapter 7</i> "Reading and Keeping a Research Journal" Book 2 HWMS <i>Chapter 4</i> "English Usage" <i>Chapter 5</i> "When English is a Foreign Language" | 9/11/17 | 9/18/17 |
| " | <i>If you have not started researching your topic by now, then you must begin researching topics for your article summaries that you will use in your research paper. Also, begin writing article summaries.</i> | " | " |
| " | <i>Article Summary 1 Due</i> | | 9/27/17 |
| " | <i>Article Summary 2 Due</i> | | 10/06/17 |
| " | <i>Deadline to submit Research Topic (you may submit your Research Topic earlier for approval and begin working on your paper at any point after your topic has been approved). To submit your topic, write a brief summary of your topic and submit it using the link provided on Moodle, then send an email informing me that you submitted your topic for approval. See more details regarding how to write your topic summary on Moodle.</i> | | 10/10/17 |
| " | <i>Instructor will have approved your research topic.</i> | | 10/13/17 |
| " | <i>Research Journal Due</i> | | 10/13/17 |
| <i>Module 4</i> | Book 1 WMRP <i>Chapter 8</i> "Components of Your Research Paper" Book 2 HWMS <i>Chapter 6</i> "Writing a Paper" <i>Chapter 7</i> "Revising a Draft" | 10/13/17 | 10/18/17 |

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| " | <i>This should be the latest date you should begin writing your research paper from article summarizes and other articles you have read if needed. (See instructions and grading rubric for details on how to structure your research paper.)</i> | 10/18/17 | |
| " | <i>I will send you a link with time slots from which to choose presentation and participation dates and times.</i> | 11/03/17 | |
| " | <i>Deadline to choose presentation and participation dates and times.</i> | | 11/10/17 |
| " | <i>Submit the first draft of your research paper. I do not expect you to submit a completed paper at this point. I just want to check your progress. (See information on Moodle regarding the first draft.)</i> | | 11/10/17 |
| Module 5 | Book 1 WMRP Chapter 9 "Oral Presentations" Book 2 HWMS Chapter 10 "Writing a Talk" Chapter 11 "Giving a Talk" | 11/10/17 | 11/17/17 |
| " | <i>Preview the Web-conferencing Site, Adobe Connect (students will login to the site along with the professor for a demonstration).</i> | | Date to be announced |
| Thanksgiving Holiday | Happy Thanksgiving | 11/20/17 | 11/24/17 |
| Module 6 | Research paper due. | | 11/27/17 |
| " | <i>Begin working on presentation.</i> | 11/27/17 | |
| Final Presentation and Participation | <i>Oral Presentations using Adobe Connect according to schedule posted on Moodle.</i> | | Dec. 5th – Dec. 13th |

****The last day to drop this course with a "W" is Friday, October 27, 2017****