Technology and Communication in Mathematics Education

Instructor: Dr. Ianna West

Office: Peltier 106B
Online Office Hours: M/W/F 10:00 AM – 12:00 noon. Available for consultation online via email daily or by appointment online.
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Section: WWW
Location: Online


Materials: Access to a computer with internet is required. A word processing software such as Microsoft Word is required. Student should have access to Powerpoint or some other presentation program, and a CAS (computer algebra system) such as Maple, Matlab, Mathematica, or Microsoft Excel. Students should have access to the texts and materials from their previous course work in the Nicholls’ graduate program.

Prerequisites: MATH 509

Catalog Description: MATH 584, Technology and Communication in Mathematics Education. 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:
1. Student will use technology to create documents, gather data, perform calculations, and create graphics.
2. Student will gain experience in delivering technology-based lessons and/or presentations.
3. Student will be able to draw upon previous course work to model and investigate problems.
4. Student will learn how to investigate unexplored problems, and write a research thesis on a topic from previous course work.
5. Student will be able to 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.

Course Background
The following outline summarizes what is taught in the core mathematics curriculum of the graduate program. The instructor will coordinate the activities of the students according to their various backgrounds.

I. Numbers and Operations
   A. Systems of Numeration
   B. Base Arithmetic
Course Content and Requirements

Content
Students are expected to create and give various representations and models to organize, record, and communicate mathematical ideas. By consolidating their mathematical thinking through communication, students will be able to analyze and evaluate the mathematical strategies of others. Current technology will aid in both the investigation of problems and the presentation of results.

Hardware and Software Requirements:
The course will be conducted via internet using Blackboard, the students’ Nicholls email address, and the web conferencing tool Dimdim. Course documents, homework assignments, grades and all other materials pertaining to the course will be delivered through Blackboard.

The URL for the university’s distance learning website is http://www.nicholls.edu/distance/. Facts about internet courses can be viewed at the FAQS site http://www.nicholls.edu/distance/faqs/. A download for minimum computer requirements for taking a course on Blackboard can be found in the last question on the FAQS site given above. A Blackboard Tutorial can be viewed at http://www.nicholls.edu/distance/blackboard-tutorial/. A word processing software such as Microsoft Word is highly recommended to complete homework assignments.

Method of Evaluation

• The students will write two journal article summaries, one to two pages, from any of there core curriculum subjects. The students must show an understanding of the article by explaining in their own words how to solve the problem.
• Students will choose a topic from previous course work, investigate unexplored areas of the topic and write a research paper. The student must use a word processor such as Microsoft Word to write the paper.
• Student must present the paper to the entire class using a free web conferencing tool such as Dimdim, utilizing a presentation program such as Powerpoint. The presentation must show evidence of the use of technology in the computations such as Microsoft Excel, or a CAS (computer algebra system) such as Maple, Matlab, or Mathematica. The paper must also include graphics. Details and format will be given later.
• The students will keep a journal making weekly entries. The students will read a chapter from the book, and write a one-page summary, journal entry, on what they learned from the chapter and how the information can be applied to their research paper.
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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<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Journal articles (two @ 50 points each)</td>
<td>100 points</td>
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<tr>
<td>Research paper</td>
<td>200 points</td>
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<tr>
<td>Presentation</td>
<td>100 points</td>
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<tr>
<td>Journal Entries (ten @10 points each)</td>
<td>100 points</td>
</tr>
<tr>
<td><strong>Total points</strong></td>
<td><strong>500</strong></td>
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**Students with Disabilities**: If you have a documented disability that requires assistance, you will need to register with the Office of Disability Services for coordination of your academic accommodations. This office is located in Peltier 100-A. The phone number is (985) 448-4430.

**Behavioral Policy**: Students must at no time be disrespectful toward the instructor. Students must behave in a professional manner at all times. Failure to act in an appropriate manner will not be tolerated and will be handled according to the guidelines outlined in the Code of Student Conduct.

**Attendance Policy**: Participation in at least one activity in which an electronic record which clearly indicates time and date of activity must be submitted. For financial aid purposes, student must complete at least one activity, which is equivalent to having attended a class at least once.

**Academic Honesty 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. Section 5 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.

**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 NSU website;
- knowing how to use and access Blackboard (or university designated electronic delivery system);
- being familiar with emergency guidelines;
- evacuating textbooks and other course materials;
- knowing their Blackboard (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 Blackboard (or designated) software;
- having a plan for continuing their courses using only Blackboard 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.

**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 and at the following link: [http://www.nicholls.edu/documents/student_life/code_of_conduct.pdf](http://www.nicholls.edu/documents/student_life/code_of_conduct.pdf).

**Americans with Disabilities Act**: If you have a documented disability that requires assistance, you will need to register with the Office of Disability Services for coordination of our academic accommodations. The Office of Disability Services is located in Peltier Hall, Room 100-A. The phone number is (985) 448-4430 (TDD 449-7002).

“The last day to drop this course with a “W” is Monday, November 1, 2010”