

# SYLLABUS

## MATH ED 334 -- SPRING 2017

### TECHNOLOGY TOOLS FOR MATHEMATICS TEACHERS

Because technology empowers students to solve difficult problems, we have a historically unique opportunity to change the misconception that only bright students are able to do interesting mathematics (Demana & Waits)

#### INSTRUCTOR

Dr. Richard Mitchell    Office: D356B, Science Building    e-mail: [rmitchel@uwsp.edu](mailto:rmitchel@uwsp.edu)  
Campus: 346-2575    Math Dept: 766-2120    Fax: 346-4260    Cell: 340-4753

#### TIMES

Class: M, T, W, R at 11:00 to 11:50 in Sci A212;

Office Hours: Feel free to stop by anytime that I am not in class. Other times by appointment - just ask.

#### EXAM GROUP

Wednesday, May 17th 08:00-10:00

#### INTRODUCTION

Course activities will focus on some of the many mathematical representations typically available through technology, including numerical, tabular, graphical, statistical, algebraic, and geometrical representations. We will explore these representations using hand-held devices such as the TI-73, TI-83, and TI-89 calculators as well as using computer software such as electronic spreadsheets, dynamic geometric exploration software, calculator-based laboratory materials, and computer algebra systems.

#### CALCULATORS

We will use Texas Instruments calculators throughout the course. The TI-73, TI-84 and TI-89 will be available for check out on a limited basis.

#### GOALS AND OBJECTIVES

A fundamental goal of the course is to become more familiar with the technology tools available and appropriate for teaching and learning of mathematics in grades 6-12. Much of our class time will be invested in mathematical explorations using calculators or computers and in discussions of those explorations.

Some of the technology we will explore and the methods proposed may be new, provoking another goal of the course: to consider the implications of available technology. It has been argued that because of technology, some mathematics may be more accessible to learners, some mathematics may be available for the first time to learners, and some mathematics may become obsolete to learners. The ready availability of versatile calculators and computers establishes new ground rules for mathematics education – it will not longer do for teachers to teach as they were taught in the paper-and-pencil era.

A secondary goal, which for the most part is unmeasured (perhaps even unmeasurable), is for you to become comfortable "without knowing yet". My belief is that the only way to stay current with technology is to become comfortable with learning on your own and from colleagues. If you never get to this point, it will be difficult for you to stay current. To help accomplish this, we will not step through each new area of technology as a group. Instead I will provide you with materials, and require you to learn the materials for the most part on your own, and from others. My role is to assist in your learning.

## COURSE REQUIREMENTS

Your grade for the course will be based on the following distribution of points:

1. Technological Skills: 75% of the grade. During this course you will become proficient with various technology tools that are relevant to middle/secondary school mathematics. **NOTE: You will need to resubmit all skill grade reports at the end of the semester.** See the *Technology Skills – Overview* handout.
2. Philosophy: 10% of the grade. Limited to no more than three pages (double spaced lines, standard 1" margins, no more than one line for the information portion, which could include things like name, date, & title). Discuss what you feel are the three to five most important/practical ideas with regard to using technology in the classroom while student teaching. Be sure to explain why you chose these ideas and how you plan to incorporate them into your teaching/classroom. Due: Finals week, or before.
3. Attendance: 10% of the grade. Students are expected to attend all class periods. Much of the learning in this class will occur either during class, or as a result of attending class. You are allowed four absences during the semester; plan your schedule accordingly (e.g., days before break, etc.). **Athletics and school events are not excused absences – be sure to see me in advance.** Of course there are exceptions for military service obligations. Absences that are beyond your control will be handled on an individual basis. The attendance portion of your grade will be computed according to the following schedule:

Absences:	0-4	5	6	7 or more
Percentage Points:	10%	8%	5%	0%

It is YOUR responsibility to insure that your name is on the attendance sheet each day that you are in class. **Note: At the discretion of the instructor, up to ten additional percentage points may be deducted for excessive absences (more than 7).**

4. Subjectivity category: 5% of the grade. Given at the discretion of the instructor and based on the completion of above-and-beyond work and/or personal growth, but along with such things as attendance, class participation, level of preparation for class periods, work completed in a timely manner, overall performance in the course, etc. **To get a value of 5% means that you performed extraordinary in this course.** To receive an A, A-, or B+ in this course you must submit a written proposal justifying such a grade.

## GRADING POLICY

Final letter grades will be assigned as follows:

A, A-, or B+ refer to subjectivity category above

B [90% - 80%]; C (79% - 70%]; D (69% - 60%] F (60% - 0%]

Appropriate + and - scores will be added at the discretion of the instructor. An incomplete will not be given for this course, unless you provide evidence of a situation beyond your control that prevents you from doing your work for a substantial time. A heavy course load is not sufficient reason for an incomplete. Note: Since records for this course are stored on a computer, please keep all materials until final grades have been posted.

Necessary conditions for an A- or A	Necessary conditions for a B+
<ul style="list-style-type: none"> <li>• Submit a written proposal justifying such a grade</li> <li>• A: Subjectivity must be 5; A-: Subjectivity must be <math>\geq 4</math></li> <li>• No late submissions</li> <li>• No more than 4 absences</li> <li>• At least two skill units with more than required components completed</li> <li>• Full credit on the philosophy paper</li> </ul>	<ul style="list-style-type: none"> <li>• Submit a written proposal justifying such a grade</li> <li>• Subjectivity must be <math>\geq 3</math></li> <li>• No late submissions</li> <li>• At least two skill units with more than required components completed</li> </ul>

## **ACADEMIC MISCONDUCT POLICY**

You are encouraged to work with others in the class (also with friends or tutors), but all of the work that you submit must be substantially your own. It is perfectly fine to get help, but you must personally understand whatever you submit for credit.

Academic misconduct is an act in which a student:

- Seeks to claim credit for the work or efforts of another without authorization or citation;
- Uses unauthorized materials or fabricated data in any academic exercise;
- Forges or falsifies academic documents or records; or
- Assists other students in any of these acts.

Examples of academic misconduct include, but are not limited to: cheating on an examination; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

For a full discussion of the academic misconduct rules on the UWSP campus see Chapter 14 of the Rules of the Board of Regents, Wisconsin Administrative Code:

<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Fwww.uwsp.edu%2Fdos%2FDocuments%2FUWS%252014.docx&ei=v2zzU4XdH9jgoAS0pYKQBw&usq=AFQjCNE3yU8CJfs0O4CXRnkUIT-aZkSPrA>

## **WORK LOAD**

University guidelines suggest that to do well in a course, students may need to spend 2-3 hours outside of class for each hour in class. Since this class meets four hours a week, you should expect to spend 8-12 hours a week in preparation for this course.

## **STUDENT RIGHTS AND RESPONSIBILITIES**

You should be fully aware of your rights and responsibilities as a UWSP student. These are detailed in the *UWSP Community Bill of Rights and Responsibilities*:

<http://www.uwsp.edu/dos/Documents/Community%20Rights%20and%20Responsibilities%20book.pdf>

## **FINAL NOTE**

I invite and appreciate your comments and suggestions for the course as it unfolds. Please share with me in person or in writing your reactions and perceptions. Your contributions will serve to enhance the course for you, your classmates, and future students.

