

**Math 4500-50 Methods of Teaching Secondary School Mathematics**  
**CRN 44457, Fall 2010, Monday 5:15~7:45, NIB 150 (3 Credits)**

**INSTRUCTOR:** Dr. Clare Banks, [banks@dixie.edu](mailto:banks@dixie.edu)  
*Office:* NIB 138 *Phone:* 652-7982  
*Office Hours:* TR 8 ~ 8:50 AM, MTWR 11~12 AM, M 4:00~5:00 PM, and by appointment.

**PREREQUISITE** Math 1210 with an earned grade of C or better or equivalent

**TEXTS** Posamentier, A. S., Smith, B. S. & Stepelman, J. (2010). *Teaching secondary mathematics: techniques and enrichment units*. (8<sup>th</sup> ed.). Columbus, Ohio: Merrill Prentice Hall.

National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics*. Reston, VA: NCTM.

**TECHNOLOGY** The model TI-83 Plus will be used in class and is highly recommended. A computer with a word processor and mathematics equation editor is also recommended.

<b>COURSE</b>	Class presentation (enrichment units/mini lesson)	100 pts
<b>REQUIREMENTS</b>	Class attendance and participation	50 pts
<b>AND</b>	Article Review/Critique	30 pts
<b>PARTICIPATION</b>	Portfolio	20 pts
	Philosophy of Mathematics Education Paper (draft & revised)	40 pts
	Teaching Observation	50 pts
	Teaching Video/Evaluation	100 pts
	NCTM & Utah SCC Reading	30 pts
	Bulletin Board	20 pts
	Midterm & Final Exams	100 pts

**GRADES:** Grades will be assigned as follows:

94-100% = A	90-93% = A-	87-89% = B+	83-86% = B
80-82% = B-	75-79% = C+	70-74% = C	65-69% = C-
60-64% = D+	55-59% = D	50-54% = D-	0-49% = F

**DISABILITIES:** Students with medical, psychological, learning or other disabilities desiring reasonable academic adjustment, accommodations, or auxiliary aids to be successful in this class will need to contact the DISABILITY RESOURCE CENTER Coordinator ( Baako Wahabu) for eligibility determination. Proper documentation of impairment is required in order to receive services or accommodations. DRC is located at the ground floor of the Financial Aid Office. Visit or call 652-7516 to schedule appointment to discuss the process. DRC Coordinator determines eligibility for and authorizes the provision of services.

**IMPORTANT DATES:** Please see <http://new.dixie.edu/reg/?page=fall2010> for important dates.

**DMAIL:** Important class and college information will be sent to your Dmail email account. This information includes your DSC bill, financial aid/scholarship notices, and notification of dropped classes, reminders of important dates and events, and other information critical to your success in this class and at DSC. All DSC students are automatically assigned a Dmail email account. If you don't know your user name and password, go to [www.dixie.edu](http://www.dixie.edu) and select "Dmail," for complete instructions. You will be held responsible for information sent to your Dmail email, so please check it often.

**CHEATING AND DISRUPTIVE BEHAVIOR** Cheating and disruptive behavior will not be tolerated. Dixie State College policy on Academic Dishonesty is explained on the website <http://www.dixie.edu/humanres/policy/sec3/334.html>

**Policy for Absences Related to College Functions:**  
<http://www.dixie.edu/humanres/policy/sec5/523.html>

**COURSE INFO:** Course description from catalog, course objective, and course outcomes for math 1010 course can be found on the math department website: [http://www.dixie.edu/math/math\\_4500.php](http://www.dixie.edu/math/math_4500.php)

**RESOURCES** The National Council of Teachers of Mathematics has e-version of the Principles and Standards for School Mathematics. <http://standards.nctm.org/document/index.htm>

Utah's Secondary Core Curriculum  
<http://www.schools.utah.gov/curr/core/corepdf/Mth7-12.pdf>

APA Formatting and Style Guide  
<http://owl.english.purdue.edu/owl/resource/560/01/>

PRAXIS: Mathematics Content Knowledge  
<http://www.ets.org/Media/Tests/PRAXIS/pdf/0061.pdf>

Though not anticipated, there is always a possibility that changes will be made to this syllabus if during the course of the class it is determined that such changes will better enable the objectives to be reached. You will be notified in class if any such changes occur.

## **Activities and Assessments**

### ***Philosophy of Mathematics Education***

At the beginning of the semester, you will write a 2-3 page paper on your philosophy of Secondary Mathematics Education. The paper should be based on but not limited to the following topics:

- What is mathematics?
- What mathematics is appropriate for secondary school students to learn?
- What should be the goals for secondary mathematics education?
- What do you feel is critical in teaching and learning mathematics?
- What do you find challenging in teaching mathematics?
- What forms of assessment should be used to best reflect student learning?
- Where do equity and technology fit into your philosophy?

At the end of the semester, you will review your philosophy of Secondary Mathematics Education and turn in a 1-2 page paper reflecting on how your philosophy may have changed during the semester.

### ***Article Review***

You will need to write four article reviews. Choose articles from *The Mathematics Teacher* (MT), the *Journal for Research in Mathematics Education* (JRME) or relevant internet sites, dated 2005 or newer for review.

Each review should be typed and include in the following order:

- Full bibliographical information for the article (APA style).
- A brief summary of the key points of the article. (The readers of your review should be able to identify the key points that the author wishes to deliver without reading the article itself).
- Your opinions about the strengths and weaknesses of the article. (The readers should be able to identify which voices are from you and which are from the author(s) when reading your critique).
- How the article is related to the NCTM standards.
- How the article will change your teaching or why the article will not be affecting your teaching.
- Make enough copies to share with your classmates, so they can include your review in their portfolio. Include the articles in your portfolio.

### ***Examinations:***

Two exams will be held in class covering all the material learned this semester.

### ***NCTM standards and Utah's SCC reading response***

Each time you read a section of the NCTM standards/Utah's SCC, summarize it in your own words and include an activity that will enhance the particular standard. When reviewing articles, lesson planning, or when discussing teaching or peer teaching observations, always use the Standards as the basis to discuss the processes and outcomes.

## ***Portfolio***

Each student needs to prepare a three-ring binder, in which you include all the materials received from the teacher or classmates, your homework assignments, and materials collected that are related to the class. Use section dividers and name each section.

One section included in your portfolio should be on internet resources. This section should include all websites mentioned in class along with a minimum of 5 other websites of your choosing that might enhance your secondary level teaching. Write a brief description of the websites you choose and submit the URL, making enough copies to share with the class.

## ***Attendance/Participation***

Students are expected to attend classes and actively participate in discussions. If you are 10 or more minutes late or have to leave before class is over, you will receive only 1/2 of the attendance/participation credit for the week.

## ***Presentation (Enrichment Units)***

You need to choose three enrichment units from your textbook to present in class. Use the book as a guideline, treat your classmates as high school students, they must be actively involved in the lessons that you teach, approximately 15 minutes each lesson.

## ***Classroom Observation***

You need to choose 1 or 2 high school teachers to do your observations on. A total of 5 observations are needed before you do your video taping of yourself teaching. Fill out observation forms after each classroom observation.

## ***Teaching video/evaluation***

Before November 24<sup>th</sup>, you need to teach a high school mathematics course and video tape the course for you and your classmates to evaluate your teaching demonstration. Details will be provided in class.

## ***Bulletin Board***

Throughout the semester each of you will need to create 2 bulletin boards. One will be a bulletin board used to teach secondary school students a math topic of your choosing. The other one can either be a collection of math jokes or a collection of recent math related news articles, arranged and displayed in an organized manner. Your classmates, along with your instructor, will evaluate your display for accuracy, neatness, & creativity. Your creation will be displayed in front of my office bulletin for a short period.

I need something from someone for each week of the semester. You can sign-up for the weeks you wish to turn in your boards on the sign up sheet in my office.(If the later weeks are all taken, you will have to produce yours earlier, or if all the early weeks are taken you will have to wait, so don't delay.)

Week and Topic (Tentative)

Week and Topic (Tentative, subject to change)			
Dates	Topic	Reading	Homework
Aug 23	Introduction		
Aug 30	The Challenge of Teaching Mathematics	Posamentier, Chapter 1 PSSM Chap 1, 2	Initial draft of philosophy of teaching mathematics. Decide on a classroom teacher with whom you will do your video taping.
Sep 6	No Class		
Sep 13	Lesson Planning	Posamentier, Chapter 2, p.14~46 PSSM Chap 3 & 7 Number & Operation	Article review on NCTM standards (1) Enrichment (subject 1, 2)*
Sep 20	Lesson Planning	Posamentier, Chapter 2, p.46~62 PSSM Chap 3 & 7 Algebra	Enrichment (subject 5)
Sep 27	Effective Teaching	Posamentier, Chapter 3, p.63~83 PSSM Chap 3 & 7 Geometry	Article review on any topic (2) Enrichment (subject 6, 7)
Oct 4	Effective Teaching	Posamentier, Chapter 3, p. 84~108 PSSM Chap 3 & 7 Measurement	3 class observation Enrichment (subject 4)
Oct 11	Problem Solving	Posamentier, Chapter 4 PSSM Chap 3 & 7 Problem Solving	Article review on problem solving (3) Submit 5 midterm exam questions Enrichment (subject 10)
Oct 18	Midterm Exam		
Oct 25	Technology	Posamentier, Chapter 5 PSSM Chap 3 & 7 Data Analysis and Probability	Article review on using technology (4) Enrichment (subject 3)
Nov 1	Assessment	Posamentier, Chapter 6 PSSM Chap 3 & 7 Reasoning and Proof	Enrichment (subject 8)
Nov 8	Enrichment Technique, Classroom Management	Posamentier, Chapter 7 PSSM Chap 3 & 7 Communication	2 class observation Enrichment (subject 12)
Nov 15	Extra Curricular Activities	Posamentier, Chapter 8 PSSM Chap 3 & 7 Connection	Enrichment (subject 11)
Nov 22	Current Issues in Mathematics Education	PSSM Chap 3 & 7 Representation	Enrichment (subject 9)
Nov 29	Video Evaluation	PSSM Chap 8	5 URLs and descriptions Video
Dec 6	Video Evaluation		Revised philosophy of education Submit 5 final exam questions Video
Dec 13	Final Exam		Portfolio

\* Posamentier p. 232 for subject code