Dixie State University of Utah
Mathematics Department

Fall 2015

Secondary Mathematics Methods
MATH 4500

Course: MATH 4500-01   CRN # 46943   Credits: 3 credits
Meeting Days and Time: Wed. 4:00 – 6:30   Semester/Year: Fall 2015
Instructor: Dr. Greg Murray   Email Address: gmurray@dixie.edu
Class Location: Snow Building 151   Office Phone: 652 - 7985
Office Location: Snow Math & Science, Room 127
Office Hours: Monday 11:00 – 1:00 & Tuesday 1:00 – 4:00

MATH 4500 DSU Catalog Description: Designed for pre-service educators, this course covers methods, remedial instruction, and curriculum development for secondary school mathematics, including applications of calculators and computers in mathematics. Technology used includes graphing calculators, spreadsheets, using math content on the web. Required for Utah Level 2, 3, and 4 Math Endorsements.

MATH 4500 Content Methods Course Description: This course is designed to assist you in acquiring the pedagogical knowledge, skills, and dispositions necessary to teach mathematics to 7th-12th grade students with various abilities, backgrounds and exceptionalities.
    Education and mathematics faculty will work together to ensure content knowledge and effective pedagogy are appropriate for secondary (grades7 -12) learning environments. Course topics include: (a) instructional strategies and procedures, (b) adaptive teaching for all students, (c) secondary school structures (block schedule etc), (d) Mathematics Common Core understanding (e) legal issues, and (f) professional growth.
    This course will ***not*** focus on mathematics facts, concepts, generalizations, or theories.
Lecture, seminar discussion, and guest speakers are the modes of instruction for this course. Teacher candidates will develop lesson plans based on national and state standards that include subject matter, instructional methods, assessments, and analysis of student learning from their practicum experience.

Math Department Guidelines: All classes in mathematics at Dixie State University Mathematics Department support the general education goal of the University, and will:
- Require students to perform mathematical processes including fractions, percentages, decimals, proportions/ratios, algebraic equations and/or calculus techniques.
- Provide students with application problems that use a variety of methods including arithmetical, algebraic and geometric methods.
- Challenge students to make inferences from mathematical models that include formulas, graphs and tables.
- Provide students with real-life applications that use a variety of mathematical functions.

Course Outcomes: This course is designed with the expectation that every student who possesses the desire and drive can be successful at meeting the following objectives:

1. Learn to use the theories of mathematics learning and develop resources for further research in specific areas of mathematics education.
3. Understand current standards in mathematics education.
4. Translate educational theories into appropriate classroom strategies.
5. Evaluate mathematics educational materials that could serve as curricular and instructional resources.
7. Identify approaches that accommodate learning for a diverse group of learners.
8. Develop pedagogical skills for the teaching of mathematics.
9. Develop a coherent and informed professional stance toward teaching in mathematics.

Prerequisites
Admission to the DSU Secondary Education Teaching program (SET).
MATH 1210 (Grade C or higher).

Required Textbooks: Brahier, D. J. (2013) *Teaching Secondary and Middle School Mathematics, 4th Ed.* Pearson Publications

Technology: Model TI-83 graphing calculator will be used in class and is highly recommended.

.**Academic Honesty**: As stated in the DSC Student Handbook; "Academic dishonesty in any form will not be tolerated at Dixie State College (Academic Discipline Policy, 3.34)" including cheating, and plagiarism. These acts of academic dishonesty are strictly prohibited.

Disability Statement: 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 for eligibility determination. Proper documentation of impairment is required in order to receive services or accommodations. DRC is located at the North Plaza Building. Visit or call 652-7516 to schedule an appointment to discuss the process. DRC Coordinator determines eligibility for and authorizes the provision of services.

Cell Phones: Need to be turned off during class. If you have an emergency, please see me prior to class.

- Laptop computers & tablets may be used in class for class work only.

Instructure Canvas: This class will utilize the CANVAS tool provided by DSC Computing. CANVAS can be access from the website https://canvas.dixie.edu/ . Online tutorials for CANVAS can be found at http://guides.instructure.com/.

General Policy: You must begin to think like a teacher instead as a student. Therefore, it is imperative that you exhibit professional teaching standards in critical thinking, honesty, integrity, appearance, respectfulness, attendance, completed assignments, responsibility for group assignments, participation, etc.

Disruptive Behavior: DSC disruptive behavior policy states, "Teachers at Dixie State University have the right to aggressively manage the classroom environment to ensure an effective learning climate. Toward this end, teachers may dismiss and remove disruptive students from individual class activities. If a student's behavior continues to disrupt class activities, the teacher may dismiss and remove disruptive students from their courses."

Title IX: The Dixie State University's Sexual Harassment and Sexual Misconduct policies are compliant with Federal laws prohibiting discrimination requires that faculty, student employees and staff members report any incidents of sex discrimination, including sexual harassment, sexual misconduct, stalking on the basis of sex, dating/intimate partner violence or sexual exploitation and/or related experiences or incidents.

Important links:
Disability Resource Center – www.dixie.edu/drcenter
IT Help Desk – www.dixie.edu/helpdesk
Library – www.library.dixie.edu
Testing Center – www.dixie.edu/testing
Tutoring Center – www.dixie.edu/tutoring

Grading Scale

This course is graded using a standards-based or criterion-referenced approach. The total points possible is divided by the total points earned to get a final percentage. The grade breakdown is as follows:

A = 100-94	B = 86-84	C = 76-74	D = 66-64
A- = 93-90	B- = 83-80	C- = 73-70	D- = 63-60
B+ = 89-87	C+ = 79-77	D+ = 69-67	F = Below 60

Check scores and grades: **https//canvas.dixie.edu**

Instructors Policy on Late Assignments, Missed Exams, and Unexcused Absences

- **Attendance and Participation:** The design of this course makes it necessary for students to *fully* participate in classroom discussions, panel presentations, guest presentations and cooperative structures. Thus, attendance *and* participation are required for this course. Appropriate documentation will be required for missing class.

- **Assignments** are due on specific dates. Assignments should reflect high levels of thinking, analysis, and application. .

- **Make-up Work:** Students that miss class for legitimate reasons may make up missed assignments. The following are considered legitimate reasons for missing class: DSU sponsored event (must provide written documentation), illness (must provide written documentation from a valid physician), death of an immediate family member (must provide written documentation). If the professor excuses an absence, the student has until the beginning of the next class to turn in the assignment.

- **Re-Do's:** My goal is for each of you to learn as much as possible and to achieve proficiency of the course content. Therefore, I allow re-do's of some assignments (does not apply to tests). Re-do's must be completed within three days after the graded assignment is returned.

Semester Calendar: http://www.dixie.edu/reg/fall2015.html

Date & Time of Final Exam: Wednesday Dec. 16, 2015   4:00 p.m.

Assignments & Descriptions

Class Assignments	Possible Points
1. Professionalism: This is the time to develop your professional habits. Being present, on time, on task, and respectful are part of professional behaviors.	30
*** Syllabus Quiz On Canvas under "Quizzes" due by Sept. 3 *****	10
2. Chapter Learning Activities: Some chapter activities will occur in class, some will be take home assignments, and some will be on Discussion board.	20 points each
3. Professional Standards from National and State Organizations: Outline the current Utah CCSSM	20
4. Class Syllabus: Create a class syllabus for a specific secondary mathematics course (rubric to be provided).	30
5. Content Project: Create a project for your future *real* students that revolves around an aspect from mathematics content that is exciting to you (rubric to be provided)	20
6. Content Lesson Plan: You will write and reflect on the lesson plan that you *__will__* teach in your practicum classroom OR in your regular classroom.	40
7. You will write a **justification** for a specific secondary math class (rubric to be provided)	20
8. Teacher Interview Report: You will interview a secondary math classroom teacher and write about specifics of using content in the secondary classroom. (details and rubric to be provided)	20
9. Practicum or Teaching Journal: This weekly journal will record specific aspects and concepts of your specific mathematics content area.	30
10. Journal Article analysis and reflection: Read, analysis, summarize and respond to a professional journal mathematics article.	30
11. Lesson Reflection: You will write reflections on a math lesson you already *__taught__* in the WCSD classroom [details and rubric to be provided]	30
11. Final Exam: Take home and in-class portions	60
Total	Approximately 360 points

Weekly Schedule

Date	Topics	Assignments
Wednesday Aug 26	Introduction of course. Introduction of students. Why math?	
Sept 2	Math as a Process. Chapter Presentation assignments. Explain Assignment #3	*Have read pages 1-4, 11-24 * Syllabus Quiz due * Respond to *Discussion 1* by Sept 10
Sept 9	Instruction avenues. Explain Assignment #7	* Have read page 40 "Conclusion", and pages 44-46, 49-64
Sept 16	What to teach, how to plan.	*Have read pages 80-82, page 89-90 the "Differentiated Model" * CCSSM due today (#3)
Sept 23	Lesson Plans Activity Plans Explain Assignments # 6 & # 4 & #8	* Have read pages 135-145 *"justification" due (assignment #7)
Sept. 30	Chapter 7 Presentation: *Teaching Tools and Strategies*	* Have read pages 169-172 * Bring Practicum Journal to class

Oct 7	Technology Content Project reports	*Class Syllabus (#4) due
Oct 14	Chapter 8 Presentation: *Teaching Number Sense and Algebra* Explain Assignment #5	* Have read pages 209-211 * Content Lesson Plan Assignment (#6) due
Oct 21	Assessment I Journal Article Assignments Explain Assignment #10	* Have read pages 278- 284. Page 315 (middle section) *Teacher Interview due (#8)
Oct 28	Chapter 9 Presentation: *Teaching Geometry, Statistics/Probability and Discrete Math*	* Assessment homework due * Have read pages 237-239
Nov 4	Assessment II Content Project reports	* Content Project due (#5)
Nov 11	Professional Growth	
Nov 18	Differentiated Instruction	* Have read pages 344-345; 359-367 * Lesson Reflection due (#11)
Nov 26	*No class. Thanksgiving Break*	
Dec 2	Core-bound Activities	* Journal Article analysis due (#10)
Dec 9	Now what? Putting it all into practice.	* Final Practicum/Teaching Journal (#9) due
Dec 16 (Wed)	4:00 p.m. Room 151 (regular room)	

This Syllabus is tentative; students are responsible for any changes announced in class.