MATH 393: Algebra, Data Analysis, and Geometry Concepts for Teachers

Instructor: Dr. Frank Pullano  
Time: TR 11:00 – 12:15  
Website: http://faculty.winthrop.edu/pullanof

Office: 168 Bancroft  
Place: Kinard 302  
Office Phone: 323-4569

E-mail: pullanofo@winthrop.edu  
Office Hours: M 3:30 – 5:00, T 2:30 – 4:30, W 4:00 – 5:00, and by appointment

Mathematics Tutorial Center 165 Bancroft Hours: M 12:00 – 3:00, T 1:00 – 4:00, W 1:00 – 5:00, R R 1:00 – 4:00

I will be working in the MTC on W 3:00 – 4:00 and R 2:00 – 4:00

Course Goals And Objectives: In this course, we will expand upon and connect many of the ideas you met in those earlier courses. We will study algebra, which studies the properties of operations on numbers, and Euclidean geometry, which studies the properties of figures in an ideal plane. We will be particularly interested in commonalities in the approaches of both fields, and will attempt to understand how mathematics develops and confirms our intuition about abstract objects.

By participating fully, you should develop more connections between concepts in elementary mathematics and recognize their relationship to more advanced study. Through your experiences in this course, you should have a deeper appreciation for the role of an elementary school teacher in helping students develop a deep understanding and appreciation for mathematics that can follow them throughout their study. This course and assignments should help you continue to develop as a potential teacher leader as outlined in the Undergraduate Conceptual framework of the Richard W. Riley College of Education at Winthrop University (for more information, see http://coe.winthrop.edu/COE/undergraduatece.htm). This course addresses General Education Goals 1, 2 and 3 (see the Winthrop University Undergraduate Catalog 2008-2009, pp. 36-37)

Required Texts And Course Materials: You are encouraged to read the sections we are covering from your texts. The emphasis in this course is on how and why certain concepts work the way they do. Your text many times offers an alternative method of explanation from the one presented during class time.

2. Supplementary Materials for MATH 291, MATH 292, & MATH 393. Complied by Beth Greene Costner and Frank B. Pullano. Bring this with you to class everyday.

Practice Problems: Practice problems will be assigned during each class session; you are expected to complete these assignments by the next class session. These problems will be taken from the texts and supplements provided by the instructor. It is strongly urged that you do the assigned problems; however, they will not be collected and graded. Solutions may be found either in the text or in the solutions manual available in the instructor's office. Office hours are an excellent time to ask questions about practice problems. You are also encouraged to help one another. These problems will constitute a large portion of quiz material and will help you prepare for tests.

Quizzes: You will be given quizzes to check on your progress at understanding the class material. These quizzes will consist of a few questions which resemble practice problems that you have been assigned. You should be prepared not only to work problems, but also to answer why questions. Be prepared for a quiz every class period by looking at your notes and suggested problems. No make-up quizzes will be given.

Exams: Three midterm exams will be given along with a cumulative final exam. No make-up exams will be given except in the case of university recognized conflicts. If this is the case, it is your responsibility to make arrangements with the instructor at least a week prior to the scheduled exam. Although we will have discussed all needed ideas/concepts/skills to answer the questions on exams, you will be required to apply your knowledge to new contexts and/or explain concepts discussed in class. Do not expect your exam to be a set of exercises exactly like those we work together or those found in the book, instead expect to use the same strategies you have in class and on suggested problems to complete problems on the exam. While you are engaged in practicing a skill, ask yourself why it is appropriate for the particular circumstance so that you can recognize other times when a similar process would be appropriate. In preparing the tests and final examination, the instructor will assume that you have read the sections; completed all suggested problems; mastered material in CTQR 150, MATH 291, and MATH 292; and asked questions as needed in and out of class.

Article Response Papers: Two article responses are required for this course. The first Article Response is required of all students. You may choose to complete either Article Response #2 or #3 for the second. You may complete all three Article Response assignments and your highest two grades will count. See the Course Schedule below for due dates. Article Responses are to be emailed to the instructor no later than 3:00 p.m. on the assigned due date. The Article Response must be attached as a Word document, Times New Roman 12 font, 1 inch margins, with your name, AR number, and title of article to which you are responding at the top of the first page. Failure to follow these guidelines will result in a 5 point deduction. These assignments are designed to give you an opportunity to draw upon all your strengths to better understand and explore the concepts covered by this course, to explore your future work as a mathematics teacher, and to provide you with the experience of pulling various pieces of information together in

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order to answer a non-routine problem. These assignments are more fully described in Supplementary Materials packet. You are encouraged to look at these descriptions beginning your work. Each article response will be graded on a 25-point scale.

**Final Paper:** This assignment is your opportunity to synthesize everything you have learned about the teaching and learning of mathematics at the elementary and/or middle level. This paper will be worth 25 points and will be discussed in more detail at a later date. See Article Response section above for format requirements.

**Skills check:** A skills check will be offered once during class (January 15) and two additional times outside of class (February 20 and March 27). See the Course Schedule below for time and location. You are required to correctly answer at least 80% of the questions in order to receive credit for this assignment. More information on the skills check is provided in the Supplementary Materials packet. The results of the skills check will be worth 100 points.

**Grading:** A point system will determine your final grade. There are 675 points possible: 300 from the tests, 100 from the final examination, 100 from the quizzes, 100 from the skills check, 50 from the article response assignments, and 25 from the final paper. In addition to the appropriate point value, the following minimum requirements must be met:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Requirement</th>
</tr>
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<tbody>
<tr>
<td>A or B</td>
<td>completion of all required assignments (even if not for credit)</td>
</tr>
<tr>
<td>C / S</td>
<td>no more than one assignment not completed (even if not for credit).</td>
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Plusses and minuses will be awarded at the discretion of the instructor.

**Attendance And Participation Policy:** Attendance at all scheduled class meetings is strongly encouraged. Your number of absences will not be counted, and will not be used directly to determine your grade. However, attendance is mandatory for those class sessions which include a test. If no prior arrangements are made with the instructor, a zero will be recorded for a test not taken due to absence. Likewise a zero will be recorded for any quiz not taken due to absence. When you are absent you miss hearing what others think about the concepts and the class misses the insight you can add. However, simply attending class is not enough; you need to be an active participant in class discussions, group time, and activities. Excessive absence or tardiness, and failure to participate in a manner congruent with the Teacher Education Professional Dispositions and Skills Criteria (see http://coe.winthrop.edu/sas/dispositions.htm) will result in completion of a dispositions report to be sent to the COE’s Student Academic Services office and will be included in your records.

**Late Work:** No late work will be accepted for credit. Unless otherwise noted, assignments are not considered late if delivered in person by 3:00 p.m. or emailed by 3:00 p.m. on the date due. If you send an assignment by email, attachments should be saved as a Word document, and you should copy yourself on the email and keep a copy of this email as a receipt of your attempt. It is your responsibility to confirm that the assignment was received by the time it was due.

**For Students With Disabilities:** Winthrop University is dedicated to providing access to education. If you have a disability and need accommodations, please contact Gena Smith, Coordinator, Services for Students with Disabilities, at 323-3290, as soon as possible. Once you have your Professor Notification Form, please tell me so that I am aware of your accommodations well before the first test or other assignment.

**Last day to select the S/U grading option:** Monday, January 26

**Last Day To Withdraw From The Class and S/U Recision:** Wednesday, March 11. Students withdrawing prior to this date will receive an "N" in the course. Students may not withdraw from a course after this date without documented extenuating circumstances. If you are enrolled in this course with a S/U grade option, you have until this date to change to the letter grade option.

**Help:** You should discuss practice problems with your classmates and instructor as a part of your study. The instructor's office hours are a good time to clear up any difficulties you have with the material. The Mathematics Department Tutoring Center (Bancroft 165) is another good place to do your coursework and to receive help from mathematics professors, mathematics majors and fellow students.

**Technology:** This course will use Geometer's Sketchpad, which is available in all campus computer labs. Tutorials on this software package will be given during the course. The instructor may also send out course-related announcements by e-mail via the Wingspan class list. You are responsible for making sure your email appears on this list.

**Academic Integrity:** Infractions of academic discipline are dealt with in accordance with the student Academic Misconduct Policy in the Student Handbook. Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation including papers, projects, and examinations; presenting as one's own, the ideas or words of another for academic evaluation without proper acknowledgment; doing unauthorized academic work for which another person will receive credit or be evaluated; and presenting the same or substantially the
same papers or projects in two or more courses without the explicit permission of the professors involved. In addition, academic misconduct involves attempting to influence one's academic evaluation by means other than academic achievement or merit. Infractions of this type will also result in completion of a dispositions report to be sent to the COE’s Student Academic Services office and will be included in your records.

**Alterations to this Syllabus:** The instructor reserves the right to make modifications to this syllabus. Students will be notified in class and by email of any modifications.