



Math Methods- EDUC 315

Course Syllabus

Location: SCL 205

Semester / Year: Fall 2017

Course Start Date: Wednesday, August 23, 2017

Course End Date: Friday, December 01, 2017

Professor Name: Amy Freier

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Course Description:

This course covers the math curriculum, content, materials, and skills integral to teaching elementary school mathematics. This course will emphasize direct instruction, hands-on methodology, use of manipulatives, integration of technology, cooperative learning, and alternative methods of drill and instruction.

Course Objectives:

1. Describe the changes in elementary math programs.
2. Examine the content of an effective math curriculum.
3. Identify which math teaching strategies are appropriate for each grade level from K-6.
4. Locate and use various math games, lesson plans, and activities on the Internet.
5. Align math with Common Core math standards, current state standards.
6. Plan, implement, evaluate, and reflect on lessons at various grade levels using the NCTM Standards, Common Core, and State Standards.
7. Teach math lessons.
8. This course meets the following standards:
 - a. INTASC Standard 2: Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
 - b. Standard 3: Learning Environments: The teacher works with others to create environments that support individual and collaborative learning and that encourage positive social interaction, active engagement in learning, and self motivation.
 - c. Standard 5: Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, collaborative problem solving related to authentic local and global issues.

- d. Standard 6: Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.
- e. Standard 7: Planning for Instruction: The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
- f. Standard 8: Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
- g. **North Dakota ESPB Standard 50015.1 Development, Learning, and Motivation.** The program requires the study of development, learning, and motivation. Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge, and motivation.

Institutional Mission Statement:

Trinity Bible College and Graduate School is committed to training and educating people with theological reflection and missional passion, in order that people and communities everywhere will hear the good news of Jesus and see His love demonstrated.

Spiritual Formation Statement:

Mathematics is built upon truths that are simply are. It is from truths that the thermos rests. As teachers you will be showing and teaching these truths. As you teach them truths, you are also setting an example of how to live a life of truth.

Required Textbooks:

Aungst, Gerald. *5 Principles of the Modern Mathematics Classroom: Creating a Culture of Innovative Thinking*. Thousand Oaks: Corwin: Sage, 2016. Print.

Course Outline:

Wed., Aug 23: Syllabus
 Fri., Aug. 25: Math Activity
 Mon., Aug. 28: Preface
 Wed., Aug. 30: Chapter 1 and Math Essay Due
 Fri., Sept. 1: Chapter 1
 Mon., Sept. 4: No School: Labor Day
 Wed., Sept. 6: Chapter 2
 Fri., Sept. 8: Chapter 2, State, National and NCTM Standard
 Mon., Sept., 11: Chapter 3
 Wed., Sept. 13: Chapter 3
 Fri., Sept. 15: Chapter 3 and activity
 Mon., Sept. 18: Chapter 4
 Wed., Sept. 20: Chapter 4
 Fri., Sept. 22: Chapter 4 and Activity
 Mon., Sept. 25: Chapter 5
 Wed., Sept. 27: Chapter 5
 Fri., Sept. 29: Finish Chapter 5 and Work on Math Game
 Mon., Oct. 2: Math Game Due, Math Manipulatives Demonstration
 Wed., Oct. 4: Chapter 6
 Fri., Oct. 6: Chapter 6

Mon., Oct. 9: Chapter 6 and Activity
Wed., Oct. 11: Math Manipulatives Due
Fri., Oct. 13: Chapter 7
Mon., Oct. 16: Chapter 7
Wed., Oct. 18: Chapter 7 and Activity
Fri., Oct. 20: No School: Fall Break
Mon., Oct. 23: Lesson Plan Introduction: Library
Wed., Oct. 25: Chapter 8
Fri., Oct. 27: Chapter 8
Mon., Oct. 30: Work Day
Wed., Nov. 1: Teach: Math Curriculum Lesson
Fri., Nov. 3: Teach: Math Curriculum Lesson
Mon., Nov. 6: Math Activity
Wed., Nov. 8: Math and Technology
Fri., Nov. 10: Math and Testing
Mon., Nov. 13: Teach: Self Created Lesson
Wed., Nov. 15: Teach: Self Created Lesson
Fri., Nov. 17: Math Activity
Mon., Nov. 20: Math Correction
Wed., Nov. 22: No School: Thanksgiving
Fri., Nov. 24: No School Thanksgiving
Mon., Nov. 27: Math Corrections Due; Math Activity at Freier's House
Wed., Nov. 29: Final Project Work Day
Fri., Dec. 1: Final Project Work Day
Mon., Dec. 4: Final Project Due

Methodology:

Lectures, course work, presentations, and cooperating teaching.

Course Requirements:

A. Attendance

Class Attendance: Trinity Bible College attendance regulations are guided by the principle that in a traditional classroom setting students receive benefit from the discussion, interaction, and emphasis of a class session which they can get no other way, even with the assignment of make-up work. To miss class is to experience a loss that may not show up on a final examination but is nevertheless real. The policy encourages faithful class attendance with allowances provided for necessary absences. Each student is encouraged to be responsible about attending all class sessions unless illness or school sponsored activities make it necessary to be absent. Being in class is more than just showing up, the professor reserves the right to mark one absent if the student is only showing up and not engaged in the learning process.

Tardiness: Students are considered tardy if they arrive after class has started. Three instances of tardiness will be charged as one absence. If a student arrives more than 15 minutes late it will be considered an absence. Similarly, except for emergencies, students may not leave the classroom early without prior approval of the instructor or the student may be penalized and counted tardy or absent.

Total Absences: Total absences may not exceed the allowable number established by the college. This is a 3 credit class which means on the 12th absence you will fail this class.

B. Computers

Once class begins, computers are to be used only for taking class notes; all unnecessary internet connections need to be terminated. This applies to smart phones as well.

Assignments:

- 1) **Class Readings and Participation:** It is expected that students read the chapter to be discussed **before** class and come prepared to contribute to class discussion with his or her background knowledge, experience, and questions. Students will be awarded participation points based on *active* class participation and involvement, including reflection and questions that are to be answered after, during, or before class. **(100 pts)**
- 2) **Math Essay-** Write a one-page essay on your view of elementary math. This is to be a personal essay explaining your views of math and how math was taught to you. **(25 pts)**
- 3) **Math Game:** Create a math game for students to use. This game needs to be used as a supplemental math lesson/concept. You will create a game and the class will play. This is to be your creation, while you can gather ideas from Pinterest or other teacher helps, you need to create this game. **(50 pts)(Standards 2,5,7, and 8)**
- 4) **Math Manipulatives:** Create manipulatives that can be used to help teach a math concept. **(50 pts)(Standards 2,5,7, and 8)**
- 5) **Teach:** Teach one lesson using math curriculum. You will need to use curriculum found in the school's children's library that can be aligned to Common Core. You need to have all the materials ready to teach this lesson. You must give an assignment that is to be done and corrected. This corrected assignment will be used later in a different assignment. Teach one lesson that you have created that follows either a state standard, NCTM, or Common Core. You will also need to give an assignment that can be corrected by you. **(250 pts each) (Standards 2,5, 7,8, 50015.1)**
- 6) **Corrected Assignments:** The two corrected assignments along with another assignment handed out by the teacher will be corrected and handed in. More information will be given at a later date. **(75 pts.) (Standard 6)**
- 7) **Final Project:** Choose one standard per grade and compile both a lesson and activity that would meet that particular standard. A detailed rubric and information will be handed out later. **(350 pts) (Standards 2,3,5,6,7, 8, and 50015.1)**

Grading Procedure:

Class Participation/Class Assignments	100
Teach: Curriculum	250
Teach: Self Created	250
Corrected Assignments	75
Math Essay	25
Math Game	50
Math Manipulatives	50
<u>Final</u>	<u>350</u>

TOTAL PTS 1150

A. Student Record Keeping:

Students are encouraged to keep a record of their own scores to determine their grade. Keep all returned assignments (for your portfolio) and record the points in a document for your records.

B. Late Paper Policy:

It is the student's responsibility to turn in work on the due date by 11:59pm. Late assignments will be penalized and work handed in a week late may be given a failing grade.

- C. When students are instructing the class, professionalism and appropriate teacher dispositions (see TBC Teacher Education Handbook) are expected in the following three areas:
1. **Appearance:** The student is expected to dress professionally, not only for his or her own confidence, but to give his or her presentation more credibility.
 2. **Conduct:** The student's manner of conduct will be professional. Appropriate attributes from your teaching should command the respect of those who are listening. Remember that **you** are the **teacher** for this time.
 3. **Materials:** The student's handouts and materials used for demonstrations shall be professional and understandable. Correct spelling and punctuation is a part of that professionalism.
 4. **Participation:** In order for each student to get the best experience possible out of teaching, you need to participate in your classmates' instruction, failure to not be involved while they are teaching will result in a reduction of points from your assignment.
- D. In order to guarantee the excellent learning environment that each student deserves (and has paid highly for), it is expected that students will act responsibly by: (1) coming to class prepared; (2) showing respect when other classmates or the instructor are talking, by not talking and carrying-on side conversations; (3) giving the speaker their **full and undivided attention**; and (4) remaining seated unless it is an emergency, (5) respecting the rules and policies put into place by the school and teacher you are observing.

Selected Bibliography:

Pearse, M. and Walton K.M. *Teaching Numeracy: 9 Critical Habits to Ignite Mathematical Thinking*. Thousand Oaks, Calif.: Corwin Press 2011, Print.

Tipps, S. Johnson, A. and Kennedy, L.M. *Guiding Children's Learning of Mathematics* (12th ed.). Belmont, Calif. Wadsworth, 2011, Print.

Additional Material / Addendums

This syllabus is provided to students and participants for their general guidance only. It does not constitute a contract; either expresses or implied, and is subject to change without notice.

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