

Course Syllabus and Information  
MTH 256: Algebraic Modeling and Measurement for K-8 Math Teachers  
Spring 2018

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Office Hours: TT 12:30-1:30  
or by appointment  
Virtual office hours (Wimba)  
by appointment

Text Book & materials to be furnished by the student:

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- (1) There is no required book for the course. If, however, you prefer learning from a textbook (as opposed to from your notes), the following book is strongly recommended: Sowder, J., Sowder, L., Nickerson, S.: *Reconceptualizing Mathematics for Elementary School Teachers*. W.H. Freeman: New York. Any edition of the book is fine.
- (2) ETA hand2mind custom manipulatives kit. These are plastic manipulatives that come in a bag or backpack and you should have it from MTH 151/152. You will not need to carry the whole kit, only the components announced in the class.
- (3) GeoGebra ( [www.geogebra.org](http://www.geogebra.org) ) – an excellent (and free!) dynamic mathematics system. There are many ways to install and use Geogebra (tablets, smartphones, chrome-based, ...). We will be using a traditional “GeoGebra Geometry” found in the “Downloads” section. Please download and install it to your computer. Feel free to use other versions of Geogebra, but keep in mind that menus and layout is different in different versions. Installing regular Geogebra from the Downloads section will ensure that you have the same controls as the computer connected to the projector.
- (4) A calculator. For students majoring or minoring in math, TI-73 TI-83+ or TI-84 are recommended.
- (5) Ruler, protractor. Bring them when announced.
- (6) Scissors (only when announced).
- (7) (Optional) Crayons or markers or colored pencils to keep your notes neat.

Course Content:

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Reasoning about Algebra and Change  
Measurement in Geometry

Course Methodology:

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The course is designed to meet the mathematical needs of those students who plan to teach grades K-9. It is based on the philosophy that mathematical ideas are learned only through

active involvement. Therefore, in this course, lecturing is reduced to a minimum and teaching methodology includes small group activities and presentations and whole class discussions – the methodology you will be using to present mathematical topics to your students.

#### Course Requirements and Assignments:

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**Attendance.** It is an activity-based class. Therefore it is important to attend every day for entire class period with your homework completed so that you can take active part in group work activities. Attendance will be taken every day. If for some reason you must be absent, it is your responsibility to contact me before the day you miss the class (in emergency situations as soon as possible). If you contact me by e-mail, I will send you back copies of handouts and homework assignments. You are allowed *three* excused absences. Each *unexcused* absence will lower your grade by five percent points.

**Daily assignments.** You are expected to complete all in and out of class assignments. I will not collect all your homework but I expect you do it and understand it. I encourage you to work together with other MTH 256 students. There will not be time in class to go over every homework problem so plan on coming to my office or contact me through e-mail if you have any questions regarding the assignment. Short (1-2 questions) unannounced quizzes may be given to monitor your home preparation.

- **Computer Lab Policy:** In the lab, you will be tempted to use the browser for activities unrelated to our class (social networks, news and other websites). Please resist the temptation – it is a considerable distraction that prevents the instructor to see who is still working and who is done. Using computer for unrelated tasks will result in deductions in “On Task” points. If done repeatedly, the student who breaks the rule will get 0 points every day the computer is used for unrelated tasks.

**Group work.** You will be working in groups of 4 students. As a group, try to answer all the questions on worksheets or asked by the instructor and discuss how to present your answers to the rest of the class. Make sure that all group members understand it completely and that *any* group member is able to lead the presentation as the instructor will randomly select the presentation leader. If any group member has a question, try to resolve it within your group first. If nobody is able to answer and/or explain it to other group members, then ask the instructor. Please keep in mind that the instructor will be answering group questions, not questions of individual students.

**Presentations.** Each group must have at least 15 satisfactory presentations during the semester. These presentations are typically explanations of the work done by the group and can take various forms. They usually take 3-10 minutes, depending on the task and discussion in the class. The rest of the class will evaluate presentations. Please observe these simple rules when presenting:

1. Do not start your presentation until you have the attention of the whole class.
2. Act as if the instructor were not in the class. Maintain the eye contact with the class not the instructor for important signs and immediate assessment of your presentation.
3. If using the visualizer in your presentation, do not stand at the visualizer. Instead, go to the screen and point to your notes as displayed on the screen.

**Exams.** You will complete three 50 min “chapter” tests and one (cumulative) final examination.

**Projects and Article reviews.** You will submit one current article review and 1 project. An article review is an individual task; projects can be worked out in groups (of 2-5 students; groups do not have to match those in the class). The role of each member must be clearly stated. Topics of projects, rubric for grading projects and reviews will be posted to my website <http://cmich.marcinek.sk>.

**Other rules.**

- Academic dishonesty (cheating) is a serious offence with serious consequences. If I see evidence that you are cheating, you will receive a grade of zero on that quiz or exam, and I will contact the Dean of Students and the Director of Teacher Education.
- Late coming, cell phone and other class disruptions will result in decreasing your group grade. To prevent it, make sure you turn OFF your cell phone before entering the classroom. Make sure that you notify me of any unavoidable late arrivals in advance.
- Electronic Devices: In order to protect the intellectual property interests of the instructor, the privacy interests of student members of the class, and to encourage an open and fair exposition of all student views in the classroom without fear that student views expressed will be recorded and possibly posted in another forum, recording of classroom lectures and conversations is not permissible without the express, prior written consent of the instructor. Unauthorized recording of classroom activity shall be considered a violation of the CMU Student Code of Rights, Responsibilities, and Disciplinary Procedures as disruptive of a student’s right to learn under 3.2.3 Disruption of Learning.

What you will be graded on

3 chapter tests	13 points each	39 points
Final Exam		26 points
Article review and Project	9 points each	18 points
Group Work		7 points
15 Group Presentations	2/3 pts each	10 points
Attendance: You are allowed <u>three</u> excused absences. Each <u>unexcused</u> absence will lower your grade by 5 percent points.		
Total possible points		100 points

Please note that there are no extra credit activities, so make sure you start working hard from the beginning of the semester.

Point value of each item is set so that they add up to 100 points. This way it is easy to keep track of your grade:

A: 94 and up	A-: 92-93	B+: 90-91	B: 83-89	B-: 80-82
C+: 77-79	C: 72-76	C-: 69-71	D: 60-68	Failing: below 60

*NOTICE: CMU provides students with disabilities reasonable accommodation to participate in educational programs, activities, or services. Students with disabilities requiring accommodations to participate in class activities or meet course requirements should first register with the Office of Student Disabilities Services (250 Foust Hall, telephone #517-774-3018, TDD #2568), and then contact me as soon as possible.*