1. **Course Number:** CTSE 7520, Spring 2018

**Course Title:**  Curriculum and Teaching – Mathematics Education

**Credit Hours:** 3 Semester Hours

**Prerequisites/Corequisites:** None

1. **Date Syllabus Prepared:** January 7, 2018
2. **Texts or Major Resources:**

Mathematical Association of American. (2017). *Instructional practices guide.* Downloaded from <https://www.dropbox.com/s/xpvkni52tkf0wgt/MAA_IP_Guide_V1-1.pdf?dl=0>

National Council of Teachers of Mathematics (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, Va.: Author. Downloaded from [http://www.nctm.org/store/Products/ (eBook)-Principles-to-Actions-(PDF-Downloads)/](http://www.nctm.org/store/Products/%20(eBook)-Principles-to-Actions-(PDF-Downloads)/)

National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, Va.: Author. Downloaded from

National Council of Teachers of Mathematics (1996). *Professional standards for teaching mathematics*. Reston, Va.: Author. Downloaded from <http://www.nctm.org/flipbooks/standards/professionalteaching/html5/index.html>

Stein, M. K., & Smith, M. S. (2011). *5 Practices for orchestrating productive mathematics discussions*. Reston, VA: NCTM. Downloaded from <http://www.nctm.org/catalog/product.aspx?id=13953>

Additional readings as assigned.

1. **Course Description:** Nature of learners and of knowledge and implications for building curricula and planning instruction in mathematics education. (AU Bulletin)
2. **Course Objectives:** Student will:

* Become acquainted with the latest research on “best practices” and the underlying theories.
* Become a more effective and reflective mathematics education practitioner.
* Develop skills for effective leadership in mathematics education

1. **Tentative Course Content and Schedule:**

|  |  |  |
| --- | --- | --- |
| **Date** | **Topic** | **Major Assignments due** |
| \*1/16/18 | Introduction; Establishing mathematical goals | Weekly learning log entry each week |
| 1/23/18 | Selecting and implementing effective tasks |  |
| 1/30/18 |  |  |
| \*2/6/18 | Facilitating mathematical discourse |  |
| 2/13/18 |  |  |
| \*2/20/18 | Posing purposeful questions |  |
| 2/27/18 |  | Proposal for issue brief |
| \*3/6/18 | Effective professional development |  |
| 3/13/18 | **Spring Break** |  |
| \*3/20/18 | Using and connecting representations | First draft of issue brief |
| 3/27/18 |  |  |
| 4/3/18 | Supporting productive struggle | Proposal for professional development |
| \*4/10/18 |  |  |
| 4/17/18 | Building procedural fluency | Professional Work Sample |
| \*4/24/18 | Formative assessment | Issue brief |
| **\*5/1/18** | **Final Exam** | Professional development plan; Final exam |

***\*Meeting via video conference***

1. **Course Requirements/Evaluation:** A letter grade will be assigned, taking into account the following activities, with the weight for each area given in parentheses. See the corresponding appendices for a detailed description of the activities.
2. Participation in class activities (30%)
3. Reflection on teaching (20%)
4. Formal papers (25% total)
5. Plan for a professional development workshop (10%)
6. Final examination (15%)
7. **Class Policy Statements:**

Attendance/Absences: Attendance at scheduled class meetings is required. Unexcused absences will result in a lowering of your course grade.

Unannounced quizzes: There will be no unannounced quizzes.

Accommodations: Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternative time can be arranged. To set up this meeting, please contact me by e-mail. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have an Accommodation Memo but need accommodations, make an appointment with the Program for Students with Disabilities at 1244 Haley Center, 844-2096 (V/TT).

Honesty Code: The University Academic Honesty Code and the *Tiger Cub* Rules and Regulations pertaining to *Cheating* will apply to this class.

**DETAILED DESCRIPTIONS OF CLASS ASSIGNMENTS**

**APPENDIX A. Participation in Course Activities (30%)**: Students are expected to attend and participate fully in all course activities.

* Students should attend and participate in all class meetings, whether face-to-face or via videoconference.
* All assigned readings and other activities should be completed prior to the class meeting.
* Topics will be periodically assigned for which students will be expected to prepare a presentation to the class. Unless otherwise specified, a slide deck should be prepared in advanced, including relevant references.

Evaluation of these activities will be based conducted on an on-going basis, based on whether or not the activities are successfully completed.

**APPENDIX B. Reflection on Teaching (20%)**: Each student should maintain a private learning log related to the teaching of a specified mathematics class.

* + The class might be a regular teaching assignment in a K-12 school or a higher education mathematics or mathematics education class, a class which the student visits on at least a weekly basis, a tutorial situation which meets at least once per week, or another approved mathematics learning environment
* A weekly log entry should be prepared, each about 1-2 pages long. An informal writing style is acceptable; however, references should be made to course materials and discussions. In some cases, prompts may be provided that should be addressed within the weekly entry.
* The log should be maintained electronically in a form that can be accessed by the professor.
* At least two lessons should be video- or audio-recorded at two points in the semester – one will be at the beginning of the semester, and the other at the end of the semester. A third might be completed near mid-term.
* You may want to maintain this on a personal blog!

**APPENDIX C. Formal Papers (25%):** There are two products in this category. The first is required of all students. The second is optional but may be required for students completing an M.Ed. or Ed.D.

1. Issue brief exploring some aspect of mathematics teaching about which you want to learn more. (15% or 25%)

* The topic should be approved in advanced.
* Upon approval of the topic, student will conduct a literature search. High-quality sources should be included, including reports from empirical studies.
* A formal paper should be submitted, following APA style. If the issue brief is the sole product for this category, it should be about 20-25 pages in length. If you are also completing a PWS, it should be about 10-12 pages in length.
* You will be asked to submit a draft prior to final submission.

1. A formal reflection following the Auburn University Secondary Mathematics Graduate-level “Professional Work Sample” (PWS) format. (10% or 0%)

* Details will be provided in a separate document.

**APPENDIX D. Professional Development Workshop (10%):** Students will prepare a plan to deliver a professional development workshop.

* The topic must be approved in advance.
* A presenter’s guide, slide deck, and all supporting materials needed to conduct the workshop must be turned in.
* In addition, a rationale and reference list should be provided.

**APPENDIX E. Final Examination (15%):** A two-hour final examination will be given following the times set forth in the final exam schedule. The exam will consist of “short response” items that can be answered in a paragraph and “long response” items that require 1-2 pages to answer. All items will be based on class readings and class discussions, with a focus on synthesizing and analyzing the information that has been covered across the course.