

Central Michigan University Special Topics Course Syllabus

MTH 595AR
Course Designator

T³ International Conference Course
Course Title

1 (1-0)
Credit Hours

Prerequisites: Registered Participant in the T³ International Conference Course

Title Abbreviation: T³ Inter. Conference
(Title abbreviation restricted to twenty (20) characters and spaces or less.)

X Course number has been cleared with the Registrar's Office.

State rationale for course level:

The *Teachers Teaching with Technology International Professional Development (T³)* program has a 25-year history of providing high quality professional development for secondary mathematics and science teachers through various programs that respond to the needs of teachers and school districts. These programs include extended courses of 9 days, 3 to 5-day summer programs, 1- and 2-day targeted sessions, on-line courses, and a highly respected annual International Conference attended by 3000 to 6000 professional educators each year. In the past, graduate credit in Math and Science Education has been offered for all of the various T³ programs. Graduate credit will be offered for significant participation at the International Conference.

The T³ International Conference is unique in the genre of educational conferences since every session is focused on the use of hand-held and computer technology to teach and learn secondary mathematics and science. The sessions presented at the conference are chosen by a team of professionals for their quality and relevance to the theme of using technology to teach and learn secondary level mathematics and science using hand-held and computer based technology specifically designed for the classroom.

This course will offer 1 semester hour of credit to graduate students in Mathematics and Mathematics Education who participate in an identifiable major strand of sessions constituting 15 contact hours (900 minutes) at the conference. The strands will include the broad curricular topics of Middle Grades Math, Algebra, Geometry, and Pre-Calculus-Calculus, Computer Algebra System (CAS) or Statistics. It should be noted that sessions that connect two or more of these strands, like Algebra and Geometry or Algebra and CAS, may be considered for inclusion in either major strand. Students will be required to report the sessions attended and sessions time information, the topic(s) and content of each session attended, commentary on each session. Students will also provide a summary how all the sessions they attended fit within and represent the identified curricular strand. In addition, students will be required to submit a plan indicating how the content of the sessions they attended will directly affect their teaching when they return to the classroom, both short and long term. Copies or scans of the handouts should be submitted with the report of hours, sessions, content, commentary, summary and plan.

Course Objective for the T³ International Conference Course:

1. To increase teachers' knowledge and understanding of mathematics content;
2. To explore alternate pedagogical methods of delivery using hand-held and computer technology;
3. To become more proficient in the use of hand-held and computer technology for teaching and learning mathematics at the secondary level;
4. To become familiar with curricular material available for high school mathematics classes;
5. To become familiar with planning and executing classroom lessons using techniques and knowledge gained in the course.

Bulletin description: (25 words or less)

This is a special professional development course for in-service teachers who are registered participants in the *T³ International Conference* course.

Textbooks and other required material to be furnished by the student:

Material and hand-outs given out as part of the individual conference sessions are the materials for the course. There is no additional material to purchase.

Special requirements of the course (field trips, special fees, etc.):

Attendance in at least 15 hours of sessions at the *T³ International Conference* is required. Students will be obliged to cover their own costs for conference registration, travel, housing, and subsistence while attending the conference.

Written Requirements:

Participants will submit a portfolio (copy of a printed document or an electronic document) that will include the following synopsis for each session attended:

- a. Session title
- b. Presenters name and association to the T³ program (i.e. national or regional instructor)
- c. Number of minutes of attendance
- d. Detailed description of the content of the session (include a copy of the session hand-outs)
- e. Comments about how this session fits into the student's identified strand
- f. Comments about the how the content of the session will help in the student's own classroom
- g. Any reflections about your instruction and assessment practice and the sessions' content.

In addition to these comments about each attended session, the student will submit an overall descriptive plan that includes details on how the information learned in the attended sessions will be implemented in their classroom over the short and long term. Other documentation used to support implementation plans could be a school improvement plans, math department goals, or other similar documents.

General methodology used in teaching the course:

Sessions at the conference will be presented in a variety of ways including lecture, hand-on workshops, and participant activities.

Conference Schedule: (These hours may vary from year to year.)

Day 1

Opening Session (8:30 a.m. – 10:00 a.m.)

Conference Sessions (10:15 a.m. – 5:15 p.m.)

Exhibit Hours (10:00 a.m. – 6:00 p.m.)

Welcome Reception (5:30 p.m. – 7:00 p.m.)

Day 2

Conference Sessions (8:15 a.m. – 5:30 p.m.)

Exhibit Hours (9:00 a.m. – 5:00 p.m.)

Day 3

Power Sessions (8:30 a.m. – 10:30 a.m.)

Closing Session (10:45 a.m. – 11:30 a.m.)

Day 3 Power Sessions (These sessions vary from year to year. The list below illustrates the variety available.)

Appreciating and Applying the Common Core State Standards of Mathematical Practice
International Perspectives on Using CAS Technology
Nine Keys to Writing a Winning Grant Proposal
Using Project-Based Learning for Student Understanding
Nspired Learning in Science Experiences from Classroom Usage
Calculus: Affecting the Lives of Millions with Dr. Deborah Hughes Hallet

Participants may attend either the Opening Session on Day 1 or the Closing Session on Day 3 to meet the 15 hour requirement. Attendance at both is not required to meet the 15 hours.

Evaluation: How is the student's work evaluated and how frequently?

Completed portfolio that includes detailed information about attended sessions and the overall implementation plan for the student's classroom for the short and long term.....100%

References:

- Antinone, L., Grasse, M., Dick, T., Howell, M., & Fitzpatrick, K. (2004). *Calculus Activities*. Dallas, TX: Texas Instruments, Inc.
- Brueningsen, C., Brueningsen, E., & Bower, B. (2000). *Math and Science in Motion: Activities for Middle School*. Dallas, TX: Texas Instruments, Inc.
- Brueningsen, C., Brueningsen, E., Turley, W., Bower, B. & Gough, S. (2003). *Discovering Math on the Voyage 200*. Dallas, TX: Texas Instruments, Inc.
- Gage, J. (1999). Shifts in confidence: The graphic calculator as a space in which to do mathematics. *Micromath*, 15 (2), 13-17.
- Hollar, J. C., & Norwood, K. (1999). The effects of graphing-approach intermediate algebra curriculum on students' understanding of function. *Journal for Research in Mathematics Education*, 30, 220-226.
- Hudson, B., & Borba, M. (1999). The role of technology in the mathematics classroom: ICME 8 Working Group 16 - Secondary School Sub-group. *Micromath*, 15 (1), 19-23.
- Merriweather, M., & Tharp, M. L. (1999). The effect of instruction with graphing calculators on general mathematics students naturalistically solving algebraic problems. *Journal of Computers in Mathematics and Science Teaching*, 18 (1), 7-22.
- Milou, E. (1999). The graphing calculator: A survey of classroom usage. *School Science and Mathematics*, 99, 133-139.
- Newman-Turner, R. & Goodman, R. S. (2002). *Activities for Algebra with the TI-73*. Dallas, TX: Texas Instruments, Inc.
- Principles and Standards for School Mathematics* (NCTM, 2000)
- Rogers, Y. (1999). What is different about interactive graphical representations? ? *Learning and Instruction*, 9, 419-425.
- Romberg, T. A., Fennema, E., & Carpenter, T. P. (Eds.) (1993). *Integrating research on the graphical representation of functions*. Hillsdale, NJ: Lawrence Erlbaum.
- Tower, R. & Perkins, B. (2005). *Algebra Using Real World Data: USA Today Activities for the TI-Navigator System*. Dallas, TX: Texas Instruments, Inc.
- Vonder Embse, C. B. & Olmstead, E (2004). *Activities for Cabri Junior on the TI-83 Plus*. Dallas, Texas: Texas Instruments, Inc.
- Vonder Embse, C. B., Olmstead, E., & Campe, K. (2004). *Exploring Mathematics with the Cabri Jr. Application*. Dallas, TX: Texas Instruments, Inc.
- Vonder Embse, C. B. & Olmstead, E. (2004). *Cabri Jr.: Interactive Geometry Activities and Investigations*. Dallas, TX: Texas Instruments, Inc.

Zbiek, R. M. (1998). Prospective teachers' use of computing tools to develop and evaluate functions as mathematical models.

Syllabus prepared by Dennis St. John

Date November 2015