University of Illinois at Urbana-Champaign
Fall 2016
Dates: July 18, 2016 to December 5, 2016
College of Education Graduate Course

Curriculum and Instruction 499 PLT
Issues and Developments in Education:
Project Lead The Way

4 graduate semester hours
Section CI 499 PLT (Project Lead The Way)—62108

-Tuition/fees for the four-hour graduate course total $1,836.00 ($459.00 per credit hour).

Course Description.

The University of Illinois is a collaborating partner with Project Lead the Way, a nonprofit organization that provides a transformative learning experience for K-12 students and teachers across the U.S. PLTW creates an engaging environment and empowers students to develop in-demand knowledge and skills necessary to thrive in an evolving world. Through pathways in computer science, engineering, and biomedical science, K-12 students learn problem-solving strategies, critical and creative thinking, and how to communicate and collaborate. Students apply knowledge from a variety of disciplines as they engage in hands-on activities, projects, and problems reflective of real-world scenarios and careers. PLTW is shaping the innovators, creators, and designers of today and tomorrow.

This graduate course builds upon Project Lead The Way teacher core training institutes hosted by the University of Illinois by providing participants the opportunity to explore additional issues related to engineering, STEM, and computer science in the K-12 classroom.

Prerequisites for Course Participation

Prerequisites for CI499 courses associated with PLTW include successful completion of one of the PLTW Summer Core Training Institute during the summer of 2016 (see http://www.pltw.uillinois.edu for more information) or earlier. Participants must have ready access to the Internet, a valid, working email address, and access to a computer with multimedia capabilities. The coursework for this class extends and builds on summer institute professional development activity.

Course Dates: July 18-December 5, 2016 (All assignments must be completed by 12/05/16)

Instructor:

George Reese reese@illinois.edu
Director, Office for Mathematics, Science and Technology Education (MSTE)
505 East Green St., Suite 102, MC-439
Champaign, IL 61820
217.244.7486
**Hours:** This is a 4-hour graduate credit course, with grade to be listed as a Fall 2016 course and posted in late fall on University transcript after successful submission of project as outlined below. Participants must complete all the readings and an action research project that investigates the impact of the PLTW course in their school environment. The project will be based upon the action research readings (see below) and designed through collaboration with the instructors. A typical project paper with adequate background discussion of readings and report on the project will be **20 pages in length.** This course credit will be given in addition to PDH professional development contact hour evidence of completion offered for participation in a summer Core Training Institute alone.

During the summer institute, students will develop a calendar for completion of the readings and submission of the final project paper. The final date for a fall project to be completed is December 5, 2016.

**Course Registration/Tuition:**

- Tuition/fees for the four-hour graduate course total $1,836.00 ($459 per credit hour).

- Those interested in registering for graduate credit should meet with the instructor during the CTI institute to discuss course expectations and to develop action research plan. **Online Registration will open June 15th, 2016.**

- PLTW participants wanting to apply for graduate credit from the College of Education at the University of Illinois at Urbana-Champaign must submit the Center for Innovation in Teaching and Learning Non-Degree Seeking Students Registration form which is accessible at [https://www-s.continuinged.uiuc.edu/ServiceCenter/NonDegreeRegistration/Login/Login.cfm](https://www-s.continuinged.uiuc.edu/ServiceCenter/NonDegreeRegistration/Login/Login.cfm)

  Complete new student login and personal information; register by selecting the **Fall 2016** term, then Curriculum and Instruction, then the course name and numbers as below and on attached direction sheet.) Participants enrolling for graduate credit will be classified as a **Graduate Non-Degree Seeking Student.**

  *(See additional Registration Directions summary handout as well for more details.)*

- To register refer to CI499 PLT section **CRN: 62108**

- Once a student registers for credit, he or she will receive email confirmation and further directions on how to “claim” and setup online NetID and password.

- Tuition invoicing will be posted electronically to your University E-mail account.

- For further information or assistance with graduate course registration options, contact Illinois PLTW Affiliate Director Brenda Pacey for assistance ([bpacey@uillinois.edu](mailto:bpacey@uillinois.edu); 217-244-5217; 807 S. Wright Street, Suite 370, MC-323, Champaign, IL 61820).
**Course Project:**

The course has two major components: readings and a project. The calendar for completion of both will be agreed upon between the instructor and the student.

**Sample project idea 1**

**Research Question:** Does the PLTW course in Gateway (or IED, POE, EDD, Launch, etc.) impact the performance of students in core content mathematics classes?

**Method:** Find a comparable group of non-PLTW students in the school and compare their course grades and scores on a pre-test and post-test. Include brief interviews with the core math teachers and with a 3 randomly selected PLTW and non-PLTW students. Work with university course instructor to develop interview questions and a rubric for evaluating the responses.

An **alternative method** could be the following:

Prepare interview questions for a “math history” of 10 students. Compare the experience of these students in their math class with their experience with their PLTW course. What factors impact the amount of effort that students put into problem solving?

**Final project** report will discuss the impact of PLTW on math classes. It should include background on the PLTW course, a discussion of the importance of the question examined for your school, the instruments (surveys, questionnaires, tests), the results of your research, and a brief conclusion with further research ideas. All this will be no less than 20 pages.

**Sample project idea 2**

**Question:** Does the PLTW course have an impact on student attitudes toward school in general?

**Method:** Choose 15 students at random and examine their attendance records prior to their enrollment in PLTW. Prepare a survey of attitudes to be given at the beginning of the course and again in early November.

**Final project** report will examine if PLTW has had an impact on student attendance and attitude towards school. It should include background on the PLTW course, a discussion of the importance of the question examined for your school, the instruments (surveys, questionnaires, tests), the results of your research, and a brief conclusion with further research ideas. All this will be no less than 20 pages.
Sample project idea 3:

**Question:** How much of the Gateway curriculum, fits within the current school science curriculum? How does this compare with the POE?

**Method:** During the implementation of a Gateway and POE course, monitor the number of additions to the curriculum. Instructors will work together to develop the rubric for the how to measure the variation from the base curriculum.

**Final project** report will compare the implementation of PLTW in the two classes as compared to the curriculum. How did they differ and why? The report will include background on the courses, the development and implementation of the rubric and a discussion of the results in approximately 20 pages.

**General Course Readings:**


Evaluation

Evaluation for the course will be based upon completion and submission of a significant final document. Students will synthesize information gained through institute participation, course readings, and additional web sites to produce a thorough discussion related to engineering and STEM in the K-12 classroom. Points of discussion include the integration of STEM and engineering concepts into curriculum, STEM and engineering concepts and state and national standards, women and minorities in STEM, and integration of CTE and elective STEM courses into the core curriculum. Paper and project topics must be pre-approved by a course instructor.
The following calendar will be filled out by the instructor and student during the CTI to ensure that readings, responses, and project deadlines are met.

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<tr>
<th>Date</th>
<th>Assignment</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>12/05/2016</td>
<td>Action research implementation completed</td>
<td>Action research report submitted</td>
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