
AC 2011-2364: FACULTY AND STUDENT INVOLVEMENT IN A GRADUATE LEVEL CIVIL ENGINEERING SEMINAR

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Faculty and Student Involvement in a Graduate Level Civil Engineering Seminar Series

Abstract:

In an effort to establish a “community of learning” within the Civil Engineering Department at the University of Arkansas, a new graduate student seminar series was created in the Spring of 2010. Both graduate and undergraduate students, faculty, private consultants, and public servants are provided with the opportunity to learn from each other during this weekly one-hour seminar.

The establishment and overview of the seminar series are discussed along with the development of guidelines for student attendance. Involvement of faculty, students, and professionals was evaluated. Attendance at each seminar is a function of topic(s), presenter(s), and time commitment conflict (schedule conflicts with other classes or faculty sabbatical). Based on data from the Spring 2010 and Fall 2010 semesters, faculty attended 41 percent of the seminars, and students attended 43 percent of the seminars. When absences for class/sabbatical/professional affiliation conflicts are excluded, faculty attended 43 percent of the seminars, while students attended 52 percent of the seminars.

Introduction:

A weekly zero credit hour graduate seminar was developed to facilitate a community of learning within the Civil Engineering Department at the University of Arkansas. Over the course of a semester, presentations covering each of the four sub-disciplines within the Civil Engineering Department are presented: geotechnical, structural, environmental, and transportation. At least 14 seminars will be offered during each semester (the number of offerings is dependent upon the number of class days excluding holidays and vacations). Each seminar is presented by either: professionals from industry (private consulting, federal, state, or municipal government), a faculty member, two graduate students, or two undergraduate honors students. The professionals or faculty present a 45 minute presentation followed by 15 minutes of questions, while each student presents a 20 minute presentation followed by 5 minutes of questions.

Students may register for the seminar series as a zero credit hour, pass-fail class. This class is required for all civil engineering graduate students to fulfill requirements for graduation, and must be taken at least once during a student’s graduate studies. To successfully complete the class, the student must attend 12 of 14 seminars during the course of the semester. The student’s graduate committee verifies that the student has successfully completed the class before finalizing the student’s graduate degree.

In addition to providing an opportunity for research presentations for graduate students, the seminar series is used to transfer knowledge between those in engineering practice and members of academia. The series also serves as a way for professional engineers to earn free professional development hours (PDH) credits, and provides an opportunity for members of engineering practice and members of academia to network.

Although this seminar series is held during the lunch hour, with snacks and PDH credits provided, interest in the seminar from students, faculty, and members of engineering practice is mediocre because the “community of learning” mindset has not been adapted by all of the faculty and students.

Establishing the Graduate Level Civil Engineering Seminar Series Course:

A graduate level civil engineering seminar series was implemented at the University of Arkansas in the spring of 2010. The seminar series was developed and organized by an Assistant Professor (in the first year of employment at the University). The Assistant Professor had practiced engineering for several private firms and was aware of the networking and knowledge gap between engineers in professional practice and engineering educators. This experience was a motivating factor in the establishment of the seminar series as a way to transfer knowledge and establish networking relationships between members of academia and members of industry.

The course associated with the seminar series was processed as a special problems course (CVEG563V) since all classes must be taught as a special problems course during the first offering. Although the intention was to offer a zero credit hour course, the University Registrar required that the special problems course be taken for credit (one-hour). Because the initial seminar course in Spring 2010 was listed as a one credit hour course, no students enrolled for the first offering. In Fall 2010, the course was listed as a zero credit hour satisfactory/unsatisfactory course at the University of Arkansas (CVEG5100) in which 17 students enrolled. For Spring 2011, ten student are currently enrolled.

The seminar series was developed as a general civil engineering seminar rather than a sub-discipline specific series. This was intended to attract the interest of the broadest possible range of professionals, and because the small size of the Civil Engineering Department at the University of Arkansas (13 tenure/tenure-track faculty, 35 graduate students) would not sustain four separate sub-discipline specific seminar courses. The sub-disciplines represented by specific speakers are equally divided to allow the most opportunity for a variety of professionals from industry to be involved. The diversity of the individual speakers' backgrounds within civil engineering also gives students exposure to many areas of civil engineering practice and ideas for research within their graduate studies

Overview of the Course:

The seminar consists of a minimum of fourteen one-hour presentations during the course of each semester. Six of the seminars are presented by students (2 students per seminar for a total of 12 students per semester) and the remaining eight seminars are presented by outside speakers. One professional development hour is awarded to professional engineers for attending each seminar, and two professional development hours are awarded to professional engineer speakers. The seminar is organized in a "brown bag" format from 12:30-1:30 pm every Thursday. The Civil Engineering department furnishes snacks. The lunch hour time slot was selected because of the limited time conflict with other classes. The scheduling of each seminar on a Thursday, however, may cause difficulties with business and travel scheduling for out-of-town professional speakers.

For student seminars, the hour-long course is divided into two 20-minute presentations with 5 to 10 minutes of questions following each presentation. Students from different sub-disciplines are selected to present during each seminar (i.e. one student from transportation, one student from structures) to prevent two presentations from students in the same sub-discipline on the same day. The eight presentations from professional engineers outside of the university community are divided equally for each of the sub-disciplines (2 speakers for: geotechnical, structural, transportation, and

environmental). These presentations are 45 minutes, followed by 15 minutes of questions.

Setting Guidelines for Student Participation:

Prior to the implementation of the seminar series, the faculty within the Department of Civil Engineering at the University of Arkansas voted on a proposal in which the guidelines for student participation were outlined. The largest amount of debate centered on how to enforce student attendance. Three suggestions were proposed: 1) a zero credit hour (satisfactory/unsatisfactory) course taken once during the student's program of graduate study with successful completion being verified by the student's committee prior to degree conferral, 2) a one-credit hour (satisfactory/unsatisfactory) course taken once during the student's program of study as a part of degree requirements (thereby changing the degree requirements), or, 3) a one-credit hour (satisfactory/unsatisfactory) course taken every semester during the student's program of study with successful completion being verified by the student's committee. The faculty voted to adopt Option 1 because they did not want to change the degree requirements (Option 2) and did not want to require the students to attend the seminar every semester (Option 3).

Significant discussion also centered on the number of seminars for which attendance is required in order to satisfactorily complete the course during the one semester in which the student is enrolled. The options included: 1) all of the seminars, 2) no more than two absences from seminars, or 3) not to keep track of attendance (honor system). The faculty agreed to allow no more than two absences from seminar for successful course completion (Option 2). Mandatory attendance at all of the seminars (Option 1) was not selected because some students are required to be away from the university for research obligations during the course of the semester, and the honor system (Option 2) was not selected because the seminar series does not yet have enough departmental momentum to suggest that student participation under the honor system would be significant.

Because the faculty member leading the series is passionate about students satisfactorily completing the seminar course during at least one semester of their graduate courses, the faculty have not yet been challenged with the duty of declining the conferral of a degree because a student did not complete the seminar course. The potential for future degree conferral challenges may need to be considered as additional graduate students progress through the program.

Participation of Students and Faculty:

Prior to each seminar a flyer is sent out to the following listserv groups: faculty, undergraduate civil engineering students, graduate civil engineering students, the Arkansas Academy of Civil Engineering, and a database containing information collected by several faculty of local, regional, and national professionals who may be interested in the seminar series (this database also contains all previous speakers). In each e-mail the Arkansas Academy of Civil Engineering members and members from the professional database are informed that they can be removed from the mailing list if they so desire. Although the members of these lists do not attend the seminar regularly they have not asked to be removed from the mailing list.

The participation of faculty and students is presented in Tables 1 and 2. The data contained in Table 1 is raw data in which time conflicts of the students and faculty and sabbatical or professional affiliation conflict of the faculty are not considered, whereas the data contained in Table 2 has been adjusted for class conflicts of students and faculty, and sabbatical or professional affiliation conflicts of faculty. A trend of increasing student participation with increasing faculty participation within the sub-disciplines is observed. The organizer of the seminar series is a faculty member within the geotechnical sub-discipline. The passion displayed by this faculty member may be causing the other faculty members and students within this sub-discipline to want to attend the seminar series in comparison with members of the other sub-disciplines.

Table 1. Participation in Civil Engineering Graduate Seminar Series (without correction).

		Geotechnical	Structural	Environmental	Transportation
All Faculty	Spring 2010	38 %			
	Fall 2010	44 %			
All Students	Spring 2010	45 %			
	Fall 2010	42 %			
Faculty By Discipline	Spring 2010	69 %	30 %	19 %	35 %
	Fall 2010	58 %	38 %	50 %	31 %
Students by Discipline	Spring 2010	78 %	35 %	19 %	50 %
	Fall 2010	52 %	37 %	67 %	30 %

Table 2. Participation in Civil Engineering Graduate Seminar Series (corrected for time conflicts requiring attendance in other classes).

		Geotechnical	Structural	Environmental	Transportation
All Faculty	Spring 2010	41 %			
	Fall 2010	45 %			
All Students	Spring 2010	49 %			
	Fall 2010	55 %			
Faculty By Discipline	Spring 2010	69 %	30 %	29 %	35 %
	Fall 2010	70 %	38 %	50 %	31 %
Students by Discipline	Spring 2010	78 %	45 %	23 %	50 %
	Fall 2010	73%	48 %	80 %	30 %

Lessons Learned:

1. A non-tenured tenure-track faculty member developed, implemented, and maintains the seminar series. A dichotomy exists within the Civil Engineering Department of the University of Arkansas in which most of the non-tenured faculty are predominately research-oriented while the tenured faculty are predominately teaching-oriented. This dichotomy leads to a non-tenured faculty member administrating a more

research-based seminar series. Leadership of the seminar course by younger, non-tenured faculty may be limiting to the breadth of the series because of the lack of networking connections younger faculty have in the civil engineering profession. More active involvement from older faculty in recruiting speakers would be a benefit to the variety and caliber of presentations.

2. The seminar series is a significant time commitment for a junior faculty member, especially for a zero credit hour course. Because the course is a zero credit hour course it will not be considered during tenure review. Organizing speakers at the start of each semester, contacting the speakers to obtain their biography one week prior to the seminar, creating, posting, and e-mailing a flyer of the seminar each week, purchasing and preparing snacks (cooling soda), and moderating the seminar require a significant time commitment.

3. At the initiation of the seminar the seminar was developed to build a “community of learners”. However, the faculty are now discussing what is the objective of the seminar series. Is the objective to: 1) develop presentation skills of the students, 2) presenting the results of research so students can see what other students are doing, 3) teaching the students using case histories, 4) providing a networking opportunity between students and faculty and professionals or 5) providing PDH hours to professionals? In order for the seminar series to survive this objective must be more formulated than the “developing community of learners” objective.

4. Student participation is directly related to faculty participation. Both faculty and student participation are related to excitement about the seminar series (specifically the presenters and topics).

5. The seminar series should be a one credit hour course as opposed to a zero credit hour course. This change in degree requirements will prevent over-site (by the committee) of a student not completing the seminar series course.