

1. General Information

1a. Submitted by the College of: ARTS & SCIENCES

Date Submitted: 10/8/2013

1b. Department/Division: Earth and Environmental Sciences

1c. Contact Person

Name: Dr. Kevin M. Yeager

Email: kevin.yeager@uky.edu

Phone: 859-257-5431

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: EES 670

2c. Full Title: Exploration Seismology

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: Advanced study of the acquisition, processing and interpretation of reflected and refracted seismic waves in layered media with applications to energy and geotechnical exploration.

2k. Prerequisites, if any: EES 550 or EES 560 or consent of instructor

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OCT 10

OFFICE OF THE
SENATE COUNCIL

21. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Fall,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 12

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: Yes

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: [var7InterestExplain]

8. Check the category most applicable to this course: Traditional – Offered in Corresponding Departments at Universities Elsewhere,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from 10.a above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6. How do course requirements ensure that students make appropriate use of learning resources?

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10. Does the syllabus contain all the required components? NO

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|ZNNIKO0|Roshan N Nikou|EES 670 NEW Graduate Council Review|20131007

SIGNATURE|RHANSON|Roxanna D Hanson|EES 670 NEW College Review|20130509

SIGNATURE|MOKER|David P Moecher|EES 670 NEW Dept Review|20130306

SIGNATURE|JEL224|Janie S Ellis|EES 670 NEW Senate Council Review|20131008

SIGNATURE|ZNNIKO0|Roshan N Nikou|EES 670 NEW Graduate Council Review|20131010

Syllabus

Instructor Information

Dr. Edward W. Woolery
Associate Professor
Rm 309 Stone Research Building
Phone: 257-3016
Email: woolery@uky.edu
Office Hours: Tuesday and Thursday 1300–1400 HRS,
or by appointment

Course Description, Objectives, and Outcomes.

An examination of body wave propagation in layered media that will focus on the acquisition, processing and interpretation of reflected and refracted seismic waves with applications to energy and geotechnical exploration. In addition to traditional problem-solving exercises, learning objectives and outcomes will be reinforced by including reviews of pertinent journal articles, as well as, field-oriented exercises and a final survey project.

Class meetings.

The class will meet on Tuesday and Thursday from 0930 to 1045 hrs in Room 203 SRB.

Textbook.

No formal textbook is required for this course; however, reading assignments will be given on a regular basis from various textbook chapters and journal articles.

Grading.

The grade for the course will be computed from the following components and their respective weights:

Homeworks/Reports	20 %	} 60%
Midterm	40 %	
Final Exam	40 %	

Letter grades will be assigned based on the final computed grade as follows:

≥ 90%	A
≥ 80% and < 90%	B
≥ 70% and < 80%	C
< 70%	E

Tentative Course Schedule.

Week No.	Topic	Homework
08/27	Introduction	
09/01 – 03	Elastic Mechanics Review/Wave Propagation	1
09/08 – 10	Wave Propagation	2
09/15 – 17	Energy Partitioning	3
09/22 – 24	Energy Partitioning/Refraction Paths	4
09/29 – 10/01	Refraction Paths/Reflection Paths	5
10/06 – 08	Reflection Paths	6
10/13 – 15	<i>Midterm Exam</i>	
10/20 – 22	Reflection Paths	7
10/27 – 29	Field Equipment and Acquisition	
11/03 – 05	Field Equipment and Acquisition	8
11/10 – 12	Field Equipment and Acquisition/Data Processing	9
11/17 – 19	Data Processing	10
11/24 – 26	Data Processing/Thanksgiving Holiday	11
12/01 – 03	Data Processing	12
12/08 – 10	Data Processing	
12/15	<i>Final Exam (Tues. 0800 hrs): PROJECT DUE</i>	

Homework.

Unless otherwise stated, homework assignments are due at the beginning of the class period ONE WEEK following the class period that the homework is assigned. Homeworks will consist of analytical problem solving, reports of literature reviews, and field-oriented data acquisition. Appropriate titles on tables and graphs are required. The first sheet of each assignment should include a header similar to the following example:

I.M. Dunne

EES 670
Exploration Seismology

Page 1 of 2

Assignment No. 7

Nov. 05, 2011

Be sure to number and include your name on all pages of your submitted assignment. Points will be deducted for work that is not sufficiently documented for the grader to understand calculations or problem solving logic, or is illegible/poorly written. The purpose of the homework format is to prepare the student for reporting/ communicating relevant information in a style most often used by private sector employers.

Cheating and Plagiarism.

In the unlikely event that an occurrence of cheating or plagiarism occurs, it will be dealt with according to University Rules http://www.uky.edu/USC/New/rules_regulations/index.htm.

Late Submissions.

Homework assignments submitted after the class period in which they are due will be allowed only if the student provides acceptable reasons as defined in the University rules, policies, and codes described in the paragraph below.

Unexcused Absences.

Note that the following are acceptable reasons for excused absences under University of Kentucky Senate Rules (S.R.): 1) serious illness; 2) illness or death of family member; 3) University-related trips (S.R. 5.2.4.2.C); 4) major religious holidays; 5) other circumstances that the instructor finds to be "reasonable cause for nonattendance." Detailed rule explanations are at <http://www.uky.edu/Ombud/policies.php> and <http://www.uky.edu/StudentAffairs/Code/par12.html>. The burden of proof for verification of an excused absence is on the student, and the instructor retains the right to ask for sufficient documentation. It is preferable to notify the instructor in advance of any planned absences. If you do not notify the instructor prior to your absence, you must do so within one week (S.R. 5.2.4.2.D). When there is an excused absence, the student will be given the opportunity to make up missed work and/or exams. No opportunity will be given the opportunity to make up missed work and/or exams in the event of an unexcused absence.

Academic Accommodations Due to Disability.

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@eamil.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Policy on Classroom Civility and Decorum.

The university, college and department have a commitment to respect the dignity of all and to value differences among members of our academic community. There exists the role of discussion and debate in academic discovery and the right of all to respectfully disagree from time-to-time. Students clearly have the right to take reasoned exception and to voice opinions contrary to those offered by the instructor and/or other students (S.R. 6.1.2). Equally, a faculty member has the right -- and the responsibility -- to ensure that all academic discourse occurs in a context characterized by respect and civility. Obviously, the accepted level of civility would not include attacks of a personal nature or statements denigrating another on the basis of race, sex, religion, sexual orientation, age, national/regional origin or other such irrelevant factors.

References.

USEFUL REFERENCES

Sheriff, R. and Geldart, L., 1995, "Exploration Seismology", Cambridge University Press: New York, 592 p.

Waters, K., 1992, "Reflection Seismology", Krieger Press: Malabar, Florida, 538 p.

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Yilmaz, O., 1987 "Seismic Data Processing", Society of Exploration Geophysicists: Tulsa, Oklahoma.

SOFTWARE

VISTA7.0, SPW, VISTA12, KingdomSUITE+, SIP, SeisImager, WINSEIS, SURFSEIS, EAVESDROPPER

Syllabus

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Outcomes

- Understand the theory of elastic wave propagation in an exploration context.
- Develop problem solving strategies for each aspect of seismic wave field.
- Be familiar with the instrumentation and appurtenant software used in exploration seismology.
- Know the field-based requirements for data acquisition.
- Construct a seismic-reflection image using fundamental signal processing algorithms.
- Be familiar with the pitfalls associated with seismic acquisition, processing, and interpretation.

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Original status records for EEO 670 submission:

Cl.	c	ID	Org. unit	c	c	WFSTATUS	Date	Time
300	5137D5D936BF08D0E100800080A3B9AB	12268010	30000457	ZCOURSE_NEW	EES 670	Received by College	03/06/2013	14:57:36
300	5137D5D936BF08D0E100800080A3B9AB	12268012	30000457	ZCOURSE_NEW	EES 670	Approved by College	05/09/2013	10:23:06
300	5137D5D936BF08D0E100800080A3B9AB	12273501	30000457	ZCOURSE_NEW	EES 670	Department Received	03/06/2013	13:56:38
300	5137D5D936BF08D0E100800080A3B9AB	12273516	30000457	ZCOURSE_NEW	EES 670	Department Approved	03/06/2013	14:57:35
300	5137D5D936BF08D0E100800080A3B9AB	12716786	30000457	ZCOURSE_NEW	EES 670	Received by GC	05/09/2013	10:23:07
300	5137D5D936BF08D0E100800080A3B9AB	12716788	30000457	ZCOURSE_NEW	EES 670	Approved by GC	10/07/2013	09:59:28
300	5137D5D936BF08D0E100800080A3B9AB	14257030	30000457	ZCOURSE_NEW	EES 670	Received by Senate Council	10/07/2013	09:59:29
300	5137D5D936BF08D0E100800080A3B9AB	14257032	30000457	ZCOURSE_NEW	EES 670	Returned for Revision by Senate Council	10/08/2013	09:27:45

Signatures on the original submission:

Instructor Name:

SIGNATURE|ZINIKOO|Rochar N Nixon|EES 670 NEW Graduate Council Review|20131007

SIGNATURE|RHANSON|Roxanna D Hanson|EES 670 NEW College Review|20130509

SIGNATURE|MCKER|David P Moecher|EES 670 NEW Dept Review|20130300

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