UNIVERSITY OF KENTUCKY

New Course Report

4/17/2014 10:50:06 AM

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OFFICE OF THE SENATE COUNCIL

1. General Information

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

Date Submitted: 4/5/2014

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 735

2c. Full Title: Topics in Structure and Tectonics

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? Yes

If Yes: Maximum number of credit hours: 9

If Yes: Will this course allow multiple registrations during the same semester? No

2j. Course Description for Bulletin: Seminar or new course offering in Structure and Tectonics. May be repeated to a maximum of nine credits under different subtitles.

2k. Prerequisites, if any: Consent of instructor.

2l. 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?: 10

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?: No

If Yes, explain:

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: No

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|MOKER|David P Moecher|EES 735 NEW Dept Review|20130328

SIGNATURE|RHANSON|Roxanna D Hanson|EES 735 NEW College Review|20130509

SIGNATURE|ZNNIKO0|Roshan N Nikou|EES 735 NEW Graduate Council Review|20130819

SIGNATURE|RHANSON|Roxanna D Hanson|EES 735 NEW Approval Resent to College|20131003

SIGNATURE|ZNNIKO0|Roshan N Nikou|EES 735 NEW Graduate Council Review|20140221

SIGNATURE|JEL224|Janie S Ellis|EES 735 NEW Senate Council Review|20140404

SIGNATURE|RHANSON|Roxanna D Hanson|EES 735 NEW Approval Returned to College|20140417

Courses | Request Tracking

New Course Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Generate R

Attachments:

Browse... Upload File

	ID	Attachment
Delete	3023	EES 735 Syllabus eCATS submission.docx

First 1 Last

Select saved project to retrieve... Get New

(*denotes required fields)

1. General Information

a. * Submitted by the College of: ARTS & SCIENCES Submission Date: 4/5/2014

b. * Department/Division: Earth and Environmental Sciences

c.

* Contact Person Name: Dr. Kevin M. Yeager Email: kevin.yeager@uky.edu Phone: 859-257-5431

* Responsible Faculty ID (if different from Contact) Email: Phone:

d. * Requested Effective Date: ◉ Semester following approval OR ○ Specific Term/Year [1]

e.

Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ Inquiry - Arts & Creativity	☐ Composition & Communications - II
☐ Inquiry - Humanities	☐ Quantitative Foundations
☐ Inquiry - Nat/Math/Phys Sci	☐ Statistical Inferential Reasoning
☐ Inquiry - Social Sciences	☐ U.S. Citizenship, Community, Diversity
☐ Composition & Communications - I	☐ Global Dynamics

2. Designation and Description of Proposed Course.

a. * Will this course also be offered through Distance Learning? ○ Yes [4] ◉ No

b. * Prefix and Number: EES 735

c. * Full Title: Topics in Structure and Tectonics

d. Transcript Title (if full title is more than 40 characters):

e. To be Cross-Listed [2] with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.

3	Lecture		Laboratory[1]		Recitation		Discussion
	Indep. Study		Clinical		Colloquium		Practicum
	Research		Residency		Seminar		Studio
	Other	If Other, Please explain:					

g. * Identify a grading system:

◉ Letter (A, B, C, etc.)
○ Pass/Fail
○ Medicine Numeric Grade (Non-medical students will receive a letter grade)
○ Graduate School Grade Scale

h. * Number of credits: 3

i. * Is this course repeatable for additional credit? ◉ Yes ○ No

If YES: Maximum number of credit hours: 9

If YES: Will this course allow multiple registrations during the same semester? ○ Yes ◉ No

j. * Course Description for Bulletin:

Seminar or new course offering in Structure and Tectonics. May be repeated to a maximum of nine credits under different subtitles.

k. Prerequisites, if any:

Consent of instructor.

l. Supplementary teaching component, if any: ○ Community-Based Experience ○ Service Learning ○ Both

3. *** Will this course be taught off campus?** ○ Yes ◉ No

If YES, enter the off campus address:

4. **Frequency of Course Offering.**

a. * Course will be offered (check all that apply): ☑ Fall ☐ Spring ☐ Summer ☐ Winter

b. * Will the course be offered every year? ◉ Yes ○ No

If No, explain:

5. *** Are facilities and personnel necessary for the proposed new course available?** ◉ Yes ○ No

If No, explain:

6. *** What enrollment (per section per semester) may reasonably be expected?** 10

7. **Anticipated Student Demand.**

a. * Will this course serve students primarily within the degree program? ◉ Yes ○ No

b. * Will it be of interest to a significant number of students outside the degree pgm? ○ Yes ◉ No

If YES, explain:

8. *** Check the category most applicable to this course:**

☑ Traditional – Offered in Corresponding Departments at Universities Elsewhere
☐ Relatively New – Now Being Widely Established
☐ Not Yet Found in Many (or Any) Other Universities

9. **Course Relationship to Program(s).**

a. * Is this course part of a proposed new program? ○ Yes ◉ No

If YES, name the proposed new program:

b. * Will this course be a new requirement [5] for ANY program? ○ Yes ◉ No

If YES [5], list affected programs::

10. **Information to be Placed on Syllabus.**

a. * Is the course 400G or 500? ○ Yes ◉ No

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in 10.b. You must include: (i) identi additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

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

[4] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[5] The chair of the cross-listing department must sign off on the Signature Routing Log.

[2] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, re two hours per week for a semester for one credit hour. (from SR 5.2.1)
[3] You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
[3] In order to change a program, a program change form must also be submitted.

Rev 8/09

Submit as New Proposal Save Current Changes

EES 735 Topics in Structure and Tectonics (Subtitle required) (3 credits)
Fall 2014 Draft Syllabus

Bulletin Description: Focused exploration of classical or emerging topics in structural geology and tectonics as applied to evolution of the Earth's lithosphere. Prereq: prior upper level undergraduate course in structural geology or tectonics, and consent of instructor. May be repeated to a maximum of 6 credits.

Full Description

Plate tectonics remains the fundamental basis for interpretation of virtually every aspect of the evolution of the Earth's crust. In spite of 50 years of refinement, there remain many fundamental questions regarding the details of plate motion and dynamics:

-How do plate boundaries interact and what are the defining structures produced at each type of plate boundaries?
-What are the structural and tectonic processes operating within plates and at plate margins that generate seismicity?
-What are the time scales of deformation and how do we measure ages of tectonic events and rates of tectonic processes?
-How do sedimentary sequences and modern sediments inform our understanding of crustal scale motions?
-How are crustal scale motions controlled by mantle dynamics?

This course will serve as a forum for exploration of a wide range of questions dealing with the 4-D (space and time) framework of the evolution of the Earth's lithosphere at the microscopic scale (e.g., grain scale deformation) to megascopic scale (tectonic plate interactions). Depending on the instructor, the course may focus on emerging topics or take a historical perspective covering evolution of thought. The course may have a field component or be based entirely on a topical field trip (e.g., spring break field trip to active tectonic regions). The course may be offered in a seminar or lecture format. Material will be discussed through detailed reading and in-depth discussion of the published literature. The goal of this course is to provide students with sufficient background in structural geology and tectonics to allow them to understand the details of the arguments for the fundamental questions posed above, and to explore further the potential relevance of these questions to their own research.

Student Learning Outcomes:
Upon completion of this course, students will be able to:

1. Describe the characteristics of the major types of plate boundaries and classify most modern plate boundaries.
2. Recognize the potential geological and geophysical tools and techniques appropriate to address common tectonic problems.
3. Gather, synthesize, and critically assess 'classic' and recent literature relating to a tectonic problem.
4. Identify and interpret the potential effect of changes of tectonic, climatic, rheologic parameters faults/fault systems and the resultant crustal deformation
5. Demonstrate understanding of the earthquake cycle for common types of faults and its role in accumulating deformation.
6. Organize and prepare a public (in class) presentation that will contribute to covering material and educating fellow graduate students. In the process the student will learn preparation of

presentation graphics with applications such as Adobe Illustrator, Photoshop, Canvas, etc.

7. Learn to critically evaluate scientific methods and outcomes of published research in the peer reviewed literature. Learn to accept constructive criticism from instructors and peers in order to improve the quality of manuscripts, presentations, and research.

Time: TR 11:00 a.m. - 12:15 p.m.
Location: 213 Slone Bldg.
Instructor: Dr. David Moecher, Professor: moker@uky.edu and/or Dr. Sean Bemis, Assistant Professor: sean.bemis@uky.edu

Offices: **Moecher:** 304 Slone Bldg.; 257-6939 **Office Hours:** MWF 11:00-11:50 p.m. or by appt.
Bemis: 306 Slone Bldg.; 257-1374 **Office Hours:** TR 9:30-10:45 a.m. or by appt.

Readings

Required reading will include materials taken from advanced textbooks and numerous readings from the peer reviewed literature in structural geology and tectonics. Material will include the following:

Davis, G.H., et al., 2011, *Structural Geology of Rocks and Regions*, Wiley
Fossen, H., 2010, *Structural Geology*, 10th Ed. Cambridge University Press
Kearsey, P., et al., 2009, Global Tectonics, Wiley

A **bibliography** of required readings will be distributed at the beginning of the term. Students will be expected to report the essential elements of each paper and will be held accountable for content on the two examinations. Students will also assemble a bibliography relevant to their term project and share this with the class.

FORMAT: The first two weeks of the course will be lecture format. Subsequent meetings will be led by students and the instructors on a rotating basis. A bi-weekly homework assignment will involve a problem or problems taken from the end of each chapter in Fossen or prepared by the instructor. These problems will usually involve calculations that are most easily done using Excel. Homework will be submitted via e-mail to the instructor as Excel files. A midterm and final exam will be based on calculations similar to those assigned for homework. Students will also select a topic related to their thesis research, summarize the state of the art on this topic in a class presentation (~ 50 mins.) and write a paper presenting the material in the presentation.

GRADES: Final grades will be based on the two exams, homework assignments, and the class presentation/report, each counting as 25% of the final grade. Grades will be assigned accordingly: A = 100-90%; B = 89-80 %; C = 79-70%. I will provide guidelines on the presentation/report later in the term.

ATTENDANCE: students are expected to attend all class sessions, with the understanding that there are often times when illness, family matters, or research travel prevent you from attending class. We are generally very understanding about these issues if you inform us ahead of time or as soon as possible after the absence. You will be allowed to make up any in class assignments or exams with a reasonable excuse.

Tentative Course Schedule*:

Date(s)	*Topics*
08-29	Introductions, Syllabus, Terminology of Tectonics
09-03	Brief review of plate tectonics and the characteristics of Earth's crust • **Assign plate boundary lessons**
09-05	Review of stress and strain. • **Discuss and start planning term project**
09-10	***No Class – Southern California Earthquake Center Annual Meeting***
09-12	Methods of analyzing tectonics • **Submit team and selected research task**
09-17	Methods of analyzing tectonics
09-19	Student-led plate boundary lessons
09-24	Student-led plate boundary lessons
09-26	Student-led plate boundary lessons
10-01	Student-led plate boundary lessons • **Preliminary lit search and research plan due**
10-03	Wrap up plate boundary discussion
10-08	Transpression and transtension • **Selected journal article summary due**
10-10	Strain/slip partitioning
10-15	Uplift (rock uplift, surface uplift, exhumation, etc.)
10-17	Climate – Tectonic feedbacks
10-22	• **Presentation of initial findings and results**
10-24	• **Presentation of initial findings and results**
10-29	***No Class – GSA Annual Meeting***
10-31	Recap of interesting/exciting/controversial tectonics presentations from GSA
11-05	Climate – Tectonic feedbacks
11-07	Fault systems • **First draft of research papers due**
11-12	Structure of fault zones
11-14	Earthquake displacements
11-19	Earthquake displacements • **Journal Article Critique due**
11-21	The earthquake cycle
11-26	The earthquake cycle
11-28	***No Class – Thanksgiving Holiday***
12-03	Case studies and new directions
12-05	Case studies and new directions
12-10	• **Presentation and discussion of final results in class**
12-12	• **Presentation and discussion of final results in class**
12-16	3:30 pm – Class Final → **No Final Exam – Final research project materials due.**

*Schedule is subject to change to accommodate discussions of major earthquake occurrences, overflow of material to subsequent class sessions, and ideally, great discussions that merit additional time. Any changes to this schedule will be reflected in an updated syllabus schedule and posted to the course Blackboard site.

Other course and Institutional Policies:

- *Cheating and Plagiarism*: Cheating and plagiarism are unacceptable for undergraduates, and unethical for professional scientists, which graduate students are training to become. Cheating and plagiarism, and how cases of are defined on p. 169-182 in the University Senate rules and regulations:

  http://www.uky.edu/Faculty/Senate/rules_regulations/index.htm

  Graduate students are expected to be able to synthesize and organize concepts from the literature and their original research into an original manuscript without plagiarizing other peoples' work. In the unlikely event that an occurrence of cheating or plagiarism occurs, it will be dealt with according to University Senate rules and regulations: For a class such as this, where group interaction is encouraged for specific exercises, it is often difficult for students to discern what constitutes cheating for copying another student's work. We will make clear which assignments are individual exercises. **All quizzes and exams constitute individual work and instances of cheating will be pursued following Senate guidelines.**

- *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. This is particularly true for graduate students in the classroom and in professional settings. 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.