

MEMORANDUM TO: Ogden College of Science and Engineering Curriculum Committee

Dr. Martin Stone
Dr. Doug Chelson
Dr. Phil Lienesch
Dr. Darwin Dahl
Dr. Huanjing Wang
Dr. Warren Campbell

Dr. Xingang Fan
Dr. Melanie Autin
Dr. Doug Harper
Dr. Andy Mienaltowski
Dr. Les Pesterfield

FROM: Kenneth Crawford, Chair

SUBJECT: Agenda for Thursday, December 1, 2016 4:00 p.m. in COHH 4123

A. OLD BUSINESS:

- I. Consideration of the minutes of the November 3, 2016 meeting.

B. NEW BUSINESS:

Consent Items

Department of Architectural Manufacturing Sciences

- I. Proposal to Revise Course Title
 - a. AMS 329, Foundations of Industrial, Vocational & Career Educ, 3 hrs.
- II. Proposal to Suspend a Program
 - a. Ref. 599, Technology Education option, 120 hrs.

Department of Biology

- I. Proposal to Delete a Course
 - a. BIOL 280, Introduction to Environmental Science, 3 hrs.
- II. Proposal to Revise Course Catalog Listings
 - a. BIOL 326, Ornithology, 3 hrs.
- III. Proposal to Revise Course Prerequisites/Corequisites
 - a. BIOL 327, Genetics, 3 hrs.
 - b. BIOL 456, Ichthyology, 3 hrs.

Department of Engineering

- I. Proposal to Revise Course Prerequisites/Corequisites
 - a. CE 461, Hydrology, 3 hrs.

Action Items

Department of Architectural and Manufacturing Sciences

- I. Proposal to Make Multiple Revisions to a Course
 - a. AMS 310, Work Design/Ergonomics, 3 hrs.
- II. Proposal to Revise a Program
 - a. Ref. 533, Construction Management, 67 or 68 hrs.

Department of Biology

- I. Proposal to Create a New Course
 - a. BIOL 285, Introduction to Field Biology, 1-4 hrs.
 - b. BIOL 355, Ecology Lab, 2 hrs.

Department of Mathematics

- I. Proposal to Create a New Course
 - a. MATH 270, The Mathematics of Social Justice, 3 hrs.

C. OTHER BUSINESS

MEMBERS PRESENT:

Dr. Martin Stone
Dr. Doug Chelson
Dr. Phil Lienesch
Dr. Darwin Dahl
Dr. Huanjing Wang

Dr. Warren Campbell
Dr. Melanie Autin
Dr. Andy Mienaltowski
Guest: Molly Dunkum

FROM: Ken Crawford, Chair

OLD BUSINESS:

Campbell/Autin moved for approval of the minutes of the September 29th meeting. Motion passed.

NEW BUSINESS:

Consent Agenda

Autin/Lienesch moved to approve the consent agenda items. Motion passed.

Action Agenda

Department of Architectural and Manufacturing Sciences

Campbell/Chelson moved to bundle Proposals to Create a New Course, items A-C. Motion passed. Chelson/Lienesch moved to approve Proposals to Create a New Course, items A-C: AMS 368, Problem Solving Modules 1, 2, and 3. Motion passed with friendly amendment.

Department of Computer Science

Campbell/Chelson moved to approve Proposal to Revise Course Credit Hours: CS 175. Motion Passed with friendly amendment.

Campbell/Lienesch moved to approve Proposal to Revise a Program: Ref. 629/629P. Motion Passed with friendly amendment.

OTHER BUSINESS:

Meeting adjourned at 4:14pm.

Proposal Date: 9/14/16

**Ogden College of Science and Engineering
Architectural and Manufacturing Sciences
Proposal to Revise Course Title
(Consent Item)**

Contact Person: Brent Askins, brent.askins@wku.edu, (270) 745-3251

1. Identification of proposed course:

- 1.1 AMS 329
- 1.2 Foundations of Industrial, Vocational and Career Education
- 1.3 3 hours

2. Proposed course title:

Introduction to Career and Technical Education

3. Proposed abbreviated course title:

Introduction to CTE

4. Rationale for the revision of course title:

Change requested by the College of Education and Behavioral Sciences so that the course will better a line with new accreditation standards.

5. Proposed term for implementation:

Fall 2017

6. Dates of prior committee approvals:

Architectural and Manufacturing Sciences

10/2/16

Ogden College Curriculum Committee

Professional Education Council (if applicable)

Undergraduate Curriculum Committee

University Senate

Proposal Date: 9/1//16

**Ogden College of Science and Engineering
Architectural and Manufacturing Sciences
Proposal to Suspend a Program
(Consent Item)**

Contact Person: Brent Askins, brent.askins@wku.edu, (270) 745-3251

1. Identification of program:

- 1.1 Program reference number: 599
- 1.2 Program title: Technology Education option only
- 1.3 Credit hours: 120

2. Rationale for the program suspension: After meeting with the state staff, Mr. John Thompson and an Eastern Kentucky University representative, Dr. Tim Ross, the recommendation is being made that the Vocational Education, 599 Technology Education option, at Western Kentucky University, be suspended until further notice. The program has no enrollment, and does not completely align with the current philosophy of the vocational program at Western. There are four programs in the state, Western, Eastern, Morehead State University and Murray State University, all with small enrollments. It is the state and my position that the students in this major would be better served if they were all at one university; Mr. Thompson supports this position. This request would have no impact on the Vocational Education, 599 Industrial Option, which has good enrollment and strong state support.

3. Effect on current students or other departments, if known: There is currently no students enrolled in this program

4. Proposed term for implementation: Fall 2017

5. Dates of prior committee approvals:

Architectural and Manufacturing Sciences	<u>10/2/16</u>
Ogden College College Curriculum Committee	_____
Professional Education Council (if applicable)	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

Proposal Date: 25 September 2016

**Ogden College of Science and Engineering
Department of Biology
Proposal to Delete a Course
(Consent Item)**

Contact Person: Scott Grubbs, scott.grubbs@wku.edu, 745-5048

1. Identification of course:

- 1.1 Current course prefix (subject area) and number: BIOL 280
- 1.2 Course title: Introduction to Environmental Science

2. Rationale for the course deletion: The Department of Biology suspended BIOL 280 during the 2010 AY. This course had not been offered since the fall 2003 semester after curricular categorical requirements of writing, environmental and ethics courses were eliminated in spring 2003. Moreover, after the implementation of the Colonnade program, Biology introduced a Connections course (BIOL 380: Challenges of a Changing Biosphere) that covers many of the topics previously taught in BIOL 280. Hence, BIOL 280 is redundant and is likewise not applicable toward a major or minor in biology.

3. Effect of course deletion on programs or other departments, if known: None. BIOL 280 is no longer included in the list of once cross-listed courses (e.g., AGRI 280, CHEM 280, ENV 280) that at one time was a required component of the Minor in Environmental Studies. With the modification of this minor to the current Environmental Studies and Sustainability, GEOG 280 is now the only required “280” course.

4. Proposed term for implementation: Fall 2017

5. Dates of prior committee approvals:

Department of Biology

_____ October 28, 2016

Ogden College Curriculum Committee

Undergraduate Curriculum Committee

University Senate

Proposal Date: 5 October 2016

**Ogden College of Science and Engineering
Department of Biology
Proposal to Revise Course Catalog Listing
(Consent Item)**

Contact Person: Scott Grubbs, scott.grubbs@wku.edu, 745-5048

1. Identification of course:

- 1.1 Course prefix (subject area) and number: BIOL 326
- 1.2 Course title: Ornithology

2. Current course catalog listing: A study of the general characteristics, economic importance, history, structure, classification, and identification of birds. Lectures and field trips.

3. Proposed course catalog listing: A study of the general characteristics, economic importance, history, structure, classification, and identification of birds.

4. Rationale for revision of the course catalog listing: A companion field laboratory course (BIOL 356 – Ornithology Lab) was added during the last academic year. The main intent of creating the lab course was to provide formalized laboratory and field learning experiences. The “field trips” component that at one time was occasionally integrated as optional learning experiences in BIOL 326 is now redundant with BIOL 356. Hence, the language regarding field trips is redundant and thereby removed.

5. Proposed term for implementation: Fall 2017

6. Dates of prior committee approvals:

Department of Biology

October 14, 2016

Ogden College Curriculum Committee

Undergraduate Curriculum Committee

University Senate

Proposal Date: 20 September 2016

**Ogden College of Science and Engineering
Department of Biology
Proposal to Revise Course Prerequisites/Corequisites
(Consent Item)**

Contact Person: Scott Grubbs, scott.grubbs@wku.edu, 745-5048

1. **Identification of course:**
 - 1.1 Course prefix (subject area) and number: BIOL 327
 - 1.2 Course title: Genetics

2. **Current prerequisites/corequisites/special requirements:**

Prerequisites: BIOL 120/121 and BIOL 122/123 with grades of “C” or higher
Corequisites: BIOL 322 or 337

3. **Proposed prerequisites/corequisites/special requirements:**

Prerequisites: BIOL 120/121 and BIOL 122/123 with grades of “C” or higher
Corequisites: None

4. **Rationale for the revision of prerequisites/corequisites/special requirements:** The two corequisites, BIOL 322 (Introduction to Molecular and Cell Biology Laboratory) or BIOL 337 (Genetics Laboratory), are being removed to accommodate a student who wishes to take the lecture without taking the lab at the same time. Prerequisite requirements will not change.

5. **Effect on completion of major/minor sequence:** None

6. **Proposed term for implementation:** Fall 2017

7. **Dates of prior committee approvals:**

Department of Biology

October 14, 2016

Ogden College Curriculum Committee

Professional Education Council

Undergraduate Curriculum Committee

University Senate

Proposal Date: October 10 2016

**Ogden College of Science and Engineering
Department of Biology
Proposal to Revise Course Prerequisites/Corequisites
(Consent Item)**

Contact Person: Philip Lienesch, Philip.Lienesch@wku.edu, 745-6006

- 1. Identification of course:**
 - 1.1 Course prefix (subject area) and number: BIOL 456
 - 1.2 Course title: Ichthyology

- 2. Current prerequisites/corequisites/special requirements:** BIOL 224/225 and permission of instructor.

- 3. Proposed prerequisites/corequisites/special requirements:** BIOL 224/225 or permission of instructor.

- 4. Rationale for the revision of prerequisites/corequisites/special requirements:** Permission of instructor is only necessary for students who have not taken the prerequisite courses.

- 5. Effect on completion of major/minor sequence:** none

- 6. Proposed term for implementation:** Fall 2017

- 7. Dates of prior committee approvals:**

Department of Biology
Ogden College Curriculum Committee
Undergraduate Curriculum Committee
University Senate

October 14, 2016

Proposal Date: 11/17/2016

**Ogden College of Science and Engineering
Department of Engineering
Proposal to Revise Course Prerequisites/Corequisites
(Consent Item)**

Contact Person: Warren Campbell, warren.campbell@wku.edu, 5-8988

- 1. Identification of course:**
 - 1.1 Course prefix (subject area) and number: CE 461
 - 1.2 Course title: Hydrology
- 2. Current prerequisites:** MATH 331, CE 160, CE 305 or STAT 301, and CE 341 or CE 342
- 3. Proposed prerequisites:** MATH 331, CE 160, and CE 341 or CE 342
Proposed corequisites: CE 305 or STAT 301
- 4. Rationale for the revision of prerequisites/corequisites/special requirements:**

Recent changes to standard flood frequency analysis methods make it possible to have CE 305/STAT 301 as a corequisite rather than a prerequisite.
- 5. Effect on completion of major/minor sequence:** No effect.
- 6. Proposed term for implementation:** Fall 2017
- 7. Dates of prior committee approvals:**

Department of Engineering
Ogden College Curriculum Committee
Undergraduate Curriculum Committee
University Senate

November 17, 2016

Proposal Date: 10/27/2016

**Ogden College of Science and Engineering
Architectural and Manufacturing Sciences
Proposal to Make Multiple Revisions to a Course
(Action Item)**

Contact Person: Bryan Reaka, bryan.reaka@wku.edu, 270.745.7032

1. Identification of course:

- 1.1 Current course prefix (subject area) and number: AMS 310
- 1.2 Course title: Work Design/ Ergonomics

2. Revise course title:

- 2.1 Current course title: WORK DESIGN/ERGONOMICS
- 2.2 Proposed course title: Ergonomics and Safety
- 2.3 Proposed abbreviated title: Ergo and Safety
- 2.4 Rationale for revision of course title: The field of Ergonomics is closely related to the area of safety and the two topics complement each other as they are being taught. The course has never been taught from a design focused content. This name better reflects the content covered in the course.

3. Revise course number:

- 3.1 Current course number:
- 3.2 Proposed course number:
- 3.3 Rationale for revision of course number:

4. Revise course prerequisites/corequisites/special requirements:

- 4.1 Current prerequisites/corequisites/special requirements: (indicate which)
- 4.2 Proposed prerequisites/corequisites/special requirements:
- 4.3 Rationale for revision of course prerequisites/corequisites/special requirements:
- 4.4 Effect on completion of major/minor sequence:

5. Revise course catalog listing:

- 5.1 Current course catalog listing: Prerequisite(s): MATH 116. Design for people-machine interaction, including an introduction to the relevant underlying human sciences. Theory, data, and measurement problems in human information processing, training and industrial safety. Course Fee
- 5.2 Proposed course catalog listing: Prerequisite(s): MATH 116. People-machine interaction, including an introduction to the relevant underlying human sciences. The interaction of how these issues relate to safety in the workplace will be elaborated upon. Course Fee
- 5.3 Rationale for revision of course catalog listing: This description better reflects the content covered in the course. The AMS Departmental Advisory Board has suggested the importance of Safety in the industrial setting and the need for more emphasis in this area.

- 6. **Revise course credit hours:**
 - 6.1 Current course credit hours:
 - 6.2 Proposed course credit hours:
 - 6.3 Rationale for revision of course credit hours:

- 7. **Revise grade type:**
 - 7.1 Current grade type:
 - 7.2 Proposed grade type:
 - 7.3 Rationale for revision of grade type:

8. **Proposed term for implementation: Fall 2017**

9. **Dates of prior committee approvals:**

Architectural and Manufacturing Sciences Department
Ogden College Curriculum Committee
Undergraduate Curriculum Committee
University Senate

10-28-2016

**Ogden College of Science and Engineering
Architectural and Manufacturing Sciences
Proposal to Revise a Program
(Action Item)**

Contact Person: Bryan Reaka, bryan.reaka@wku.edu, 270.745.7032

1. Identification of program:

- 1.1 Current program reference number: 533
- 1.2 Current program title: Construction Management
- 1.3 Credit hours: 67 or 68

2. Identification of the proposed program changes:

- Change total hours of program from 67 or 68 to 69 or 70
- Replace AMS 140 with AMS 310
- Remove lower division options in the supervisory section of MGT 210 or BUS 210C or BUS 245C or BUS 248C
- Remove lower division options in business law section of MGT 200 or MGMT 200C or BUS 226C
Also removal of MGT 314 from this section
- Add option of AGECE 360 in economics section

3. Detailed program description:

AMS 140	Intro to Occupational Safety	1	AMS 310	Ergonomics and Safety	3
AMS 163	Architectural Drafting	3	AMS 163	Architectural Drafting	3
AMS 261	Construction Methods & Materials	3	AMS 261	Construction Methods & Materials	3
AMS 262	Construction Laboratory	1	AMS 262	Construction Laboratory	1
AMS 271	Industrial Statistics	3	AMS 271	Industrial Statistics	3
AMS 371	Quality Assurance	3	AMS 371	Quality Assurance	3
AMS 217	Industrial Materials	3	AMS 217	Industrial Materials	3
AMS 282	Structures	3	AMS 282	Structures	3
AMS 305	Building codes	3	AMS 305	Building codes	3
AMS 325	Survey of Building Systems	3	AMS 325	Survey of Building Systems	3
AMS 390	Project Management	3	AMS 390	Project Management	3
AMS 394	Lean Systems	3	AMS 394	Lean Systems	3
AMS 398 or UC 400	Internship I or Mentored Research Experience	1	AMS 398 or UC 400	Internship I or Mentored Research Experience	1
AMS 430 or MGT 210 or BUS 210C or BUS 245C or BUS 248C	Tech Mgt/Supervision or Organization & Management, or Managing Diversity in the Workplace, or Supervisory Management	3	AMS 430	Technology Mgt/Supervision	3
AMS 490	Senior Research	3	AMS 490	Senior Research	3
CM 250	Contract Documents	3	CM 250	Contract Documents	3
CM363	Construction Estimating & Bidding	3	CM363	Construction Estimating & Bidding	3
CM 462	Construction Scheduling	3	CM 462	Construction Scheduling	3

CE 160/160 or AGMC 170/171	Surveying I /Lab	3 or 4	CE 160/160 or AGMC 170/171	Surveying I /Lab	3 or 4
CE 303	Construction Management	3	CE 303	Construction Management	3
CE 304	Construction Management Lab	1	CE 304	Construction Management Lab	1
CE 316	Equipment & Methods	3	CE 316	Equipment & Methods	3
ACCT 200, or MKT 220, or MKT 325 or FIN161 or Fin 161C or RE 170C or Bus 100C or Bus 102C or Bus 110C or BUS 250C or BUS 252C or MKT 390 or ENT 312	Introductory Accounting, or Basic Marketing concepts, or Personal selling, or personal Finance, or Essentials of Real Estate, or intro to Business, or Intro to Ethical Issues in Business, or Basic Accounting, or Business Entrepreneurialship, or Selling and Sales Management or Value Creation in Emerging Markets or Entrepreneurship	3	ACCT 200, or MKT 220, or MKT 325 or FIN161 or Fin 161C or RE 170C or Bus 100C or Bus 102C or Bus 110C or BUS 250C or BUS 252C or MKT 390 or ENT 312	Introductory Accounting, or Basic Marketing concepts, or Personal selling, or personal Finance, or Essentials of Real Estate, or intro to Business, or Intro to Ethical Issues in Business, or Basic Accounting, or Business Entrepreneurialship, or Selling and Sales Management or Value Creation in Emerging Markets or Entrepreneurship	3
Mgt 200 or MGMT 200 or MGT 301 or MGT 314 or MGT 333 or MGT 365 or BUS 226C	Legal Environment of Business, or Business Law, or Operations Management, or Management of Nonprofit Org, or Entrepreneurial Law, or Introduction to Law	3	MGT 301 or MGT 333 or MGT 365	Business Law, or Management of Nonprofit Org, or Entrepreneurial Law	3
ECON 150 or ECO 150 or ECON 202 or ECO 202 or ECON 203 or ECO 203 or ECON 375 or or ECON 390 or BUS 160C or Bus 212C	Intro to Economics or Principles of Economics (Micro) or Principles of Economics (Macro) or Moral Issues of Capitalism or Economics, Law, and Public Choice or Financial Management or Principles of Marketing	3	ECON 150 or ECO 150 or ECON 202 or ECO 202 or ECON 203 or ECO 203 or ECON 375 or or ECON 390 or AGEC 360 or BUS 160C or Bus 212C	Intro to Economics or Principles of Economics (Micro) or Principles of Economics (Macro) or Moral Issues of Capitalism or Economics, Law, and Public Choice or Agric Economics or Financial Management or Principles of Marketing	3
MAJOR		67 or 68		major in CM	69 or 70
	Electives	13 or 14		Electives	11 or 12
	Additional Requirements			Additional Requirements	
	Math 117 or Higher	3		Math 117 or Higher	3
	Total BS degree	120		Total BS degree	120

4. Rationale for the proposed program change:

- Change total hours of program from 67 or 68 to 69 or 70 – This reflects the replacement of a 1 hour course by a 3 hour course
- Replace AMS 140 with AMS 310- The AMS Departmental Advisory Board has suggested that the students have more exposure to safety in the course of their major this is a 3 credit hour course dealing with safety and ergonomics instead of a 1 credit hour course on the topic. This will also assist with an issue of 50% of the major needing to be upper division.
- Remove lower division options in the supervisory section of MGT 210 or BUS 210C or BUS 245C or BUS 248C – this is being done to help ensure 50% of the major is upper division.
- Remove lower division options in business law section of MGT 200 or MGMT 200C or BUS 226C - this is being done to help ensure 50% of the major is upper division. The removal of MGT 314 is due to it not being a business law course.
- Add option of AGECE 360 in economics section – As a significant number of the graduates are working in the foods processing industry, this adds another option for students to take a different course in the economics section of the major. This may also serve to help students who transfer in to the University General Education Certified to reach the 42 hours of upper division credits.

5. Proposed term for implementation: Effective Catalog Year: 2017-2018

6. Dates of prior committee approvals:

Architectural and Manufacturing Sciences	<u>10-28-2016</u>
OCSE Curriculum Committee	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

Proposal Date: 5 September 2016

Ogden College of Science and Engineering
Department of Biology
Proposal to Create a New Course
(Action Item)

Contact Person: Scott Grubbs, scott.grubbs@wku.edu, 745-5048

1. Identification of proposed course:

- 1.1 Course prefix (subject area) and number: BIOL 285
- 1.2 Course title: Introduction to Field Biology
- 1.3 Abbreviated course title: Introduction to Field Biology
(maximum of 30 characters or spaces)
- 1.4 Credit hours: 1–4 Variable credit (yes)
- 1.5 Grade type: Standard Letter Grade
- 1.6 Prerequisites/corequisites: None
- 1.7 Course description: An introductory field experience on a specific biological or ecological topic. *Course Fee*

2. Rationale:

- 2.1 Reason for developing the proposed course: The Department of Biology offers Field Biology (BIOL 485) on a regular basis, yet this is inappropriate when the evaluatory assessment measures are more aligned with a lower-division course. In addition, the prerequisites for BIOL 485 are “Major or minor in the life sciences and consent of instructor”. The introduction of a permanent, lower-division, introductory field biology course that lack prerequisites will provide a clearer separation between the proposed course and the existing BIOL 485. For example, Biology offers a field course each January for Gatton Academy students in Costa Rica under the BIOL 485 heading that would be more appropriately placed under a lower-division course. Having both lower- and upper-division options for field biology courses makes decision-making easier regarding the evaluatory measures proposed when this course originates either within the Department of Biology or by other academic units (i.e., other WKU Departments, other universities).
- 2.2 Projected enrollment in the proposed course: 15–20
- 2.3 Relationship of the proposed course to courses now offered by the department: Aside from BIOL 485, every other field-oriented course offered by Biology is highly specific to a topic (e.g., Plant Taxonomy, Ornithology Lab). The proposed course will compliment BIOL 485 and provide clearer separation between lower- and upper-division offerings.
- 2.4 Relationship of the proposed course to courses offered in other departments: Geology and Geography offers several courses directed at specific geologic and hydrologic topics. Both the proposed course and BIOL 485 are unique since the emphasis is on biological and ecological topics and questions.
- 2.5 Relationship of the proposed course to courses offered in other institutions: 5 of the 18 WKU Benchmark Institutions offer some form of a flexible undergraduate

Field Biology Course that can be applied in any setting. WKU Biology would be the only with distinct lower- and upper-division options.

- Ball State University – BIO 420, Field Biology of Distant Areas
- Bowling Green State University – BIOL 5390, Field Experience
- Indiana State University - BIO 451, Field Study of Ecosystems
- Towson University – BIOL 494, Travel Study
- University of Southern Mississippi - BSC 404, Field Biology

In addition, 3 of the other 7 Kentucky Public Institutions offer some form of a lower-division, flexible undergraduate Field Biology Course.

- Eastern Kentucky University – BIO 595, Topics in Field Biology
- Murray State University – BIO 596, Field Studies in Ecology
- University of Kentucky – BIO 355, Biology Study Abroad

3. Discussion of proposed course:

3.1 Schedule type: C

3.2 Learning Outcomes: This will vary by instructor. The following are two successful, summer-only BIOL 485 classes that are offered annually by WKU Biology faculty. These are excellent examples of different ways a Field Biology course can be delivered.

BIOL 485: African Wildlife Management – Dr. Michael Stokes

This is a skills-based course for students in relevant careers, including veterinary medicine, ecology and wildlife biology. The goals are to learn and apply:

- basic field safety when working with wildlife
- principles and practices of wildlife capture
- principles and practices of wildlife immobilization
- principles and practices of wildlife handling
- principles and practices of temporary housing of wildlife
- principles and practices of wildlife translocation
- practice of wildlife conservation in South Africa

BIOL 485: Medicine in Kenya – Dr. Nancy Rice

Learning emphases while in Kenya will stress addressing community-identified needs through active engagement in medical healthcare services while additionally incorporating an understanding of broad factors influencing health and quality of life. At the end of this course students will have:

- acquired basic knowledge of Kenyan culture, geography, language, biodiversity, health care, and the epidemiology of prevalent disease
- gained practical training in medical assessment and rudimentary physical therapy
- know the logistical information for the field course
- prepared themselves through readings and discussion for full cultural immersion during the associated field course in Kenya

- 3.3 Content outline: This is a generic template that will vary by instructor based on geographic location and anticipated student outcomes:
- introduction to regional biodiversity
 - local biodiversity
 - local field trips
 - ecotourism and conservation challenges
 - student presentations
 - final assessments
- 3.4 Student expectations and requirements: This will vary by instructor. This is an example of a successful course that is taught repeatedly by a Biology faculty under a BIOL 485 heading.

BIOL 485: Costa Rica Biodiversity Studies – Dr. Keith Philips

- Assist researchers at Goldring Gund Marine Lab with projects on sea turtles
- Design and implement a one week research project at Cloudbridge Nature Preserve
- Present research results at the Cloudbridge Nature Preserve Annual Meeting
- Participate in various research activities at several locations as well as in and near Corcovado National Park
- Maintain a detailed field notebook

3.5 Tentative texts and course materials: Textbooks, if used, will vary by instructor.

4. Resources:

- 4.1 Library resources: Adequate
 4.2 Computer resources: Adequate

5. Budget implications:

- 5.1 Proposed method of staffing: No additional staff required when offered by the Department of Biology. We anticipate that BIOL 285 will continue to be offered mainly as a study-abroad course during winter and summer terms.
 5.2 Special equipment needed: None
 5.3 Expendable materials needed: None
 5.4 Laboratory materials needed: None

6. Proposed term for implementation: Fall 2017

7. Dates of prior committee approvals:

Department of Biology	<u>September 16, 2016</u>
OCSE Curriculum Committee	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

students study terrestrial and aquatic natural history in the field and perform ecological research.

- 2.5 Relationship of the proposed course to courses offered in other institutions: Ecology Lab is a common course. Currently, all of our 18 benchmark institutions offer an ecology lab or similar field experience. In addition, 6 of the other 7 Kentucky Public Institutions offer an upper division general Ecology course with an imbedded or corequisite lab component.

3. Discussion of proposed course:

3.1 Schedule type: B

3.2 Learning Outcomes:

- Integrate the process of ecological research with identifying reasons why a particular line of inquiry warrants investigation
- Evaluate and use scientific literature to gather information
- Formulate testable hypotheses
- Plan research
- Generate, record, analyze, and interpret data
- Write a scientific paper using the format from an appropriate journal
- Develop an oral or poster presentation

3.3 Content outline:

- Scientific process
- Searching and reading ecological literature
- Scientific hypotheses
- Experimental design
- Initiating research
- Managing notebooks and data
- Data analysis
- Synthesis
- Writing scientific papers and developing presentations

3.4 Student expectations and requirements:

- Assignments
- Conducting literature searches
- Reviewing literature
- Maintain a laboratory notebook
- Writing a scientific paper
- Developing a presentation

3.5 Tentative texts and course materials:

- No text required. This course will rely mainly on scientific literature.

4. Resources:

4.1 Library resources: Adequate

4.2 Computer resources: Adequate

5. Budget implications:

5.1 Proposed method of staffing: This course will be taught by Department of Biology faculty

5.2 Special equipment needed: None

5.3 Expendable materials needed: None

5.4 Laboratory materials needed: None

6. **Proposed term for implementation:** Fall 2017

7. **Dates of prior committee approvals:**

Department of Biology

Ogden College Curriculum Committee

Undergraduate Curriculum Committee

University Senate

28 October 2016

3. Discussion of proposed course:

3.1 Schedule type: L

3.2 Learning Outcomes:

Upon successful completion of MATH 270, students will be able to:

- Interpret information presented in mathematical and/or statistical forms.
- Use mathematics and statistics to analyze social justice issues on local and global scales.
- Examine the local and global interrelationships of one or more social justice issues through data analysis and basic mathematical modeling.
- Use critical thinking and quantitative reasoning to evaluate the consequences of decision-making on local and global scales.
- Make inferences, evaluate assumptions, and assess limitations in the application of mathematical tools to problems in social justice.
- Perform an appropriate mathematical analysis of one or more social justice issues at local and global scales and articulate the results and implications.

3.3 Content outline: Students in MATH 270 will examine social justice issues from among those listed in the outline below using appropriate mathematical tools. Students will investigate connections and relationships between multiple issues at local, regional, national, and global scales.

- Basic Human Needs (Food, Water, Shelter)
 - Measuring Standard of Living: Per Capita Gross Domestic Product, Genuine Progress Indicator, Human Development Index, Index of Social Health
 - Allocation of Resources: Elementary Game Theory Models, Fairness Metrics
 - Food Security: Food Desert Maps, Price Volatility, Global Hunger Index
 - Analyzing Housing and Homelessness: Quantifying Discrimination, Correlation between Majority/Minority Status and Housing Status
 - Concentration of Environmental Hazards / Exporting Pollution: Geometric Map Analysis, Statistical Analysis
 - Defense vs. Social Spending: Sourcing, Analyzing, Representing Data
- Health Care and Education
 - Defining and Measuring Access to Healthcare: Problems of Data Collecting and Sourcing, UHC Indicator
 - Comparing Disease and Mortality Rates: Data Analysis, Basic Hypothesis Testing
 - Relationship between Healthcare Access and Disease and Mortality Rates: Correlation, Regression
 - Education Rates & Levels: Data Analysis; Basic Time Series Analysis
 - Relationship between Education and Standard of Living: Graphical Representation, Correlation, Regression

- Freedom and Public Safety
 - Measuring Safety: Crime Rate Statistics (and Accounting for Underreporting), Crime Harm Index
 - Fairness in Policing: Probability Simulations, Hypothesis Testing
 - Measuring Incarceration Rates across Localities, Regions, and Nations: Summary Statistics, Data Analysis
 - Analyzing Incarceration Rates Over Time: Linear & Non-Linear Modeling
 - Comparing Prisoner Population to Overall Population: Goodness of Fit Testing
 - Relationship between Laws, Prosecution, and Sentencing and Public Safety: Linear and Nonlinear Regression, Correlation Coefficients
- Representation and Political Power
 - Voting with Two Choices
 - Voting with Three or More Choices: Plurality, Single Runoff, Sequential Runoff, Borda Count, Condorcet Method
 - Arrow's Impossibility Theorem
 - Indices of Voting Power: Banzhaf, Shapley-Shubik, Penrose
 - Apportionment Methods: Hamilton's Method, Jefferson's Method, Webster's Method, Hill-Huntington Method
- Income and Wealth Distribution
 - Measuring Income and Wealth Inequality: Gini Coefficient, 20:20 Ratio, Palma Ratio, Hoover Index, Atkinson Index, Generalized Entropy Index
 - Relationship between Income and Wealth Distributions and Other Issues across Localities, Regions, and Nations: Linear and Nonlinear Regression, Correlation Coefficients
 - Globalization of Labor: Optimization, Linear Programming
 - Balancing Equality, Growth, & Innovation: Optimizing Inequality

3.4 Student expectations and requirements: Students will complete written assignments and projects throughout the semester comprising applications of mathematics to a variety of social justice issues. Students will use a variety of mathematical and statistical tools to examine the history, current status, and implications of a selected social justice issue on both local and global scales, and will present their findings in a final paper and presentation.

3.5 Tentative texts and course materials:
 Taylor, A. D. (1995). *Mathematics and politics: Strategy, voting, power and proof*. New York: Springer-Verlag.
 Materials will come from many sources including books, journals, and online resources.

4. Resources:

- 4.1 Library resources: See attached Library Resources Form.
- 4.2 Computer resources: Current resources are adequate.

5. Budget implications:

- 5.1 Proposed method of staffing: Current Mathematics Department Faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

6. Proposed term for implementation: Spring 2018

7. Dates of prior committee approvals:

Department of Mathematics

11/18/2016

Ogden College Curriculum Committee

Colonnade General Education Committee

Undergraduate Curriculum Committee

University Senate