

**MEMORANDUM TO:** Ogden College of Science and Engineering Curriculum Committee

Ms. Robin Ayers  
Dr. Ting-Hui Lee  
Dr. Pat Kambesis  
Dr. Phil Lienesch  
Dr. Jeremy Maddox

Dr. Andy Mienaltowski  
Dr. Les Pesterfield  
Dr. Todd Willian  
Mr. Jason Wilson

**FROM:** Dr. Stuart Burris, Chair

**SUBJECT:** Agenda for Thursday, January 28<sup>th</sup> at 4:00 p.m.

**A. OLD BUSINESS:**

- I. Consideration of the minutes of the November 19, 2020 meeting. Note: The OCSE committee did not meet as scheduled on December 10<sup>th</sup> because we only had informational expedited review items on the agenda that did not require college committee approval.

**B. NEW BUSINESS:**

Type of item	Description of Item & Contact Information
Action	<b>Proposal to Create a New Course</b> BIOL 351, Indian Himalayas – Biogeography, Ganges & Culture, 3 hrs. Contact: Nilesh Sharma, <a href="mailto:Nilesh.sharma@wku.edu">Nilesh.sharma@wku.edu</a> , x6593
Action	<b>Proposal to Revise a Program</b> Ref. 617, Major in Biology, 36 hrs. Contact: Scott Grubbs, <a href="mailto:scott.grubbs@wku.edu">scott.grubbs@wku.edu</a> , 270-202-6981
Action	<b>Proposal to Revise a Program</b> Ref. 525, Major in Biology, 48 hrs. Contact: Scott Grubbs, <a href="mailto:scott.grubbs@wku.edu">scott.grubbs@wku.edu</a> , 270-202-6981
Action	<b>Proposal to Revise a Program</b> Ref. 731, Mathematica Economics, 61-62 hrs. Contact OCSE: Melanie Autin, <a href="mailto:melanie.autin@wku.edu">melanie.autin@wku.edu</a> , x3651 Contact GFCB: Alex Lebedinsky, <a href="mailto:alex.lebedinsky@wku.edu">alex.lebedinsky@wku.edu</a> , x3150

**C. OTHER BUSINESS**

**Members Present:**

Ms. Robin Ayers  
Dr. Ting-Hui Lee  
Dr. Pat Kambesis  
Dr. Phil Lienesch  
Dr. Jeremy Maddox  
Dr. Andy Mienaltowski  
Dr. Todd Willian  
Mr. Jason Wilson

**Guest:**

Dr. Mark Cambron  
Dr. Mike Carini

**FROM:** Dr. Stuart Burris, Chair

The meeting was called to order at 4:00pm.

**OLD BUSINESS:**

Maddox/Willian moved to approve of the minutes of the October 2020 meeting. Approved as presented.

**NEW BUSINESS:**

**Consent Agenda**

Mienaltowski/Willian moved to bundle and approve the consent agenda. Motion approved.

**Action Agenda**

**Physics Department**

Mienaltowski/Willian moved to Proposal to Revise a Program: Ref. 318, Astronomy Minor. Motion approved.

**School of Engineering & Applied Sciences**

Willian/Kambesis moved to approve Proposal to Revise a Program: Ref. 534P/534, Civil Engineering. Motion Approved.

**OTHER BUSINESS:**

None.

**Action Item: Proposal to Create a New Course**  
**Ogden College of Science & Engineering**  
**Department/Unit: Biology**

**Section 1: Proponent Contact Information**

- 1.1 Name/Title:** Dr. Nilesh Sharma
- 1.2 Email address:** Nilesh.sharma@wku.edu
- 1.3 Phone #** 270-745-6593

**Section 2: Course Catalog Information**

- 2.1 Course prefix (subject area) and number:** BIOL 351
- 2.2 Course CIP code:** 32.0107
- 2.3 Course title:** Indian Himalayas – Biogeography, Ganges & Culture
- 2.4 Abbreviated Course title:** Indian Himalayas & Culture
- 2.5 Credit hours/Variable credit:** 3
- 2.6 Repeatability:** N/A
- 2.7 Course Term: Is this course intended to span more than a single term?**  
YES                      NO X
- 2.8 Course Catalog Description:** An interdisciplinary study-abroad course that includes studies in biology, history, culture and religion related to India
- 2.9 Prerequisite/Corequisites/Restrictions:** None
- 2.10 Additional Enrollment Requirements:** None
- 2.11 Other Special Course Requirements:** Study-abroad
- 2.12 Grade Type:** Standard A-F final grade
- 2.13 Schedule Type:** L

**Section 3: Description of proposed course**

- 3.1 Course Content Summary:** Students will visit the fields/sites, places, interact with people and learn in order to
  - Describe the geographical physiography of the regions visited
  - Identify common flora and fauna in relation to their habitats
  - Analyze the cultural diversity in relation to the history of the country



- Demonstrate familiarity with Indian cuisines/food or clothes and attire
- Evaluate agents of environmental degradation
- Apply the concept of global connectedness and challenges in local contexts at home

*Methods for Innovative Teaching and Learning:*

Students will uncover and experience the diversity at multiple levels - biology, ecology, geography, history, religion and culture-featuring the Northern frontier of India. We will visit the Shivalik hills region comprised of triangular ancient cities of Haridwar, Rishikesh and Dehradun, each renowned for its unique geographical physiography, religious and cultural attributes. Through the interactions with the scientists of premier institutions of India related to Himalayan studies in Dehradun and guided field visits, students will gain the first-hand knowledge of the geography, ecology, flora and fauna that define the region. Our interactions will occur with students and faculty of the Dev Samskriti University, Haridwar: a center of excellence in the education and research of Indian traditions and cultures. Here students will gain an overview of the Vedic culture system and Indian traditions. At the end of our Himalayan tour, we return to Delhi, where we will visit the medieval monuments and neighboring Agra city for the tour of the Tajmahal, one of the wonders of the world. All these engagements will help our students to recognize and assimilate the vast diversity in land and life forms, human activities, foods, cuisines, clothing, and beliefs that define the human world.

**3.2 Learning Outcomes:**

**Colonnade Connections Student Learning Outcomes (SLO)**

1. Articulate the relationship between ideas, experiences, and place
2. Develop tools to engage with diverse people in the local cultures
3. Explore other peoples' values and clarify their own.

**3.3 Assessment/Evaluation:** Course completion will be evaluated by a comprehensive grading scale based on the student's participation, field exploration, journal entries, reading, presentation and a final research/reflection paper

**Section 4: Rationale**

- 4.1 Reason for developing this proposed course:** a) This course proposal was initiated in response to a special call from the Study Abroad & Global Learning (WKU) for the curricular needs of a study-abroad course under the Colonnade Connections Category–International Experience Subcategory. This is the first multidisciplinary course proposal that integrates biology with many other disciplines (history, geography, cultures, religions or cuisines) and thus will be particularly beneficial for biology and humanities students. (b) The need for such a course can also be felt in light of the following data. On average, around 500 WKU students study abroad annually on various types of credit-bearing international experiences.



Approximately 10% of WKU students graduate with study abroad experience. According to one recent survey by the WKU/SAGL, 2,500 of this year's incoming freshmen indicated their interest in studying abroad. (c) Rooted in the core theme of diversity, this study-abroad course will be a good fit for the current WKU Strategic Planning Initiatives.

**4.2 Relationship to similar courses offered by other university departments/units:**

- Do any other courses already being offered by other university departments/units share content with this proposed course? YES NO X
- Are any of the proposed pre/co-requisites for this course offered by another university department/unit? YES NO X
- If the answer to both questions is NO, simply proceed to item 5.
- If the answer to either of those questions is YES, indicate here who in the affected departments/units was consulted, and the dates of those consultations:

**Section 5: Projected Enrollments/Resources**

**5.1 How many students per section are expected to enroll in this proposed course?** 10-20 students

**5.2 How many sections of this course per academic year will be offered?**  
One

**5.3 How many students per academic year are expected to enroll?**  
10-20 students

**5.4 How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections.**

Based on the trend of previous courses offered by biology and some other departments.

**5.5 Proposed method of staffing:**

This course will be taught off-load (summer term) current Department of Biology faculty./

**5.6 Instructional technology resources:** None

**5.7 Library resources:** Will this proposed course require the use of library resources (books, journals, reference materials, audio-visual materials, electronic databases, etc.)? YES NO X

If YES, was a [Library Resources Form](#) submitted to the appropriate collection development librarian prior to consideration at the college curriculum level?

**Section 6: Proposed term for implementation:** Fall 2021

**Section 7: Supplemental/Supporting Documentation:** Sample syllabus upon request

## University Undergraduate Curriculum Proposal Checklist

Please complete the following checklist to ensure your proposal will proceed smoothly and efficiently. Include the checklist as a cover sheet with your proposal. Proposals without the checklist will be returned to the proponent.

- For new or revised programs, courses, or course descriptions, what departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Dr. Caryn Lindsay (Director-SAGL, several times between 1/31/2020 and 4/27/2020)

Dr. Mary Wolinski (Colonnade Committee Chair, between 3/2/2020 and 4/23/2020)

- What are the potential budget implications for this proposal? If any additional staffing is required, how will it be funded? If not, how will current staffing accommodate the proposed course/program?

None. This course is intended to be taught off-contract as a summer, study-abroad offering.

- If you are proposing a new undergraduate program or changes to an existing undergraduate program, please include a new or updated four-year degree pathway.
- Has the proposal been checked carefully for mechanics, grammar, syntax, and clarity?

Michael E. Smith

Digitally signed by Michael E. Smith  
DN: cn=Michael E. Smith, o=Western Kentucky  
University, ou=Department of Biology,  
email=michael.smith1@wku.edu, c=US  
Date: 2021.01.20 15:18:53 -0600

Department Head

1/20/2021

Date

Dean or Designee

Date



**Proposal to Revise a program: Major in Biology, 617**  
**Ogden College of Science and Engineering**  
**Department: Biology**

**Section 1: Proponent Contact Information**

- 1.1 Name/Title: Scott Grubbs/Professor of Biology
- 1.2 Email address: scott.grubbs@wku.edu
- 1.3 Phone #: 270 202-6981

**Section 2: Program Information**

- 2.1 Current Program reference number: 617
- 2.2 Current Program title: Major in Biology
- 2.3 Current total number of credits required in the program: 36

**Section 3: Proposed program revisions and rationales**

- 3.1 Addition of Ecology Lab (BIOL 355) to the laboratory experience course list. Prior to 2015, Ecology (315) was a 4.5 credit course with an embedded lab. The lab was removed and subsequently re-added as a stand-alone course (BIOL 355). Program 617 requires three laboratory courses. BIOL 355 provides a rigorous laboratory experience for students that should be added to the lab course list for 525 majors.
- 3.2 Addition of Ecology Lab (BIOL 355) to the science process course list. Prior to 2015, Ecology (315) was a 4.5 credit course with an embedded lab. The lab was removed and subsequently re-added as a stand-alone course (BIOL 355). Program 617 requires one science process course. BIOL 355 also provides a rigorous science process experience for students that should be added to the science process course list for 617 majors.
- 3.3 Removal of BIOL 326 (Ornithology) from the laboratory experience course list. The addition of BIOL 326 to this list was a mistake. This is a lecture-only course. There is a stand-alone Ornithology Lab (BIOL 356) course that is already include in the laboratory experience course list.
- 3.4 Change and simplify MATH requirement language from "MATH 116 and 117 or MATH 118 or higher" to "MATH 116 and MATH 117 or MATH 136". Both MATH 118 and MATH 142 (Calculus with Applications for Life Sciences) are no longer options for students since neither has been taught for several years. The present "or higher" language is diffuse and too open for interpretation. The propose change provides clarity for students, advisors, and Biology faculty and staff.
- 3.5 Reduce the "4. Two courses from the following list:" from 25 (corequisite labs were not counted separately) to 13 supporting courses. I looked at six academic years of data for all Biology majors to assess frequency trends for all 25 courses. Total enrollment across the six years was 0 for six courses (AGRO 455/AGRO 456, CS 226, CIS 226, GISC 417,

MATH 305, PHYS 265/PHYS 266), 1 for three courses (AGRO 454, AGRO 457/AGRO 458, MATH 307), 3 for AGRO 452, 5 for GEOG 328 and 6 for CHEM 314. Overall, the removal of 12 courses is a simplification for students and Biology advisors for supporting courses that are of no/little interest to students or for courses that had either no longer available or not offered in years (e.g., CHEM 314). MATH 142 is also being removed for the same reasons as stated above in 3.3.

**Section 4: Consultations**

Do any of the proposed revisions in section 3 above involve or in any other way impact other departments/units? YES NO

If NO, simply proceed to item 5.

If YES, identify those revisions here, referring to them by the numbers assigned in section 3 above, and for each, indicate who in the affected department/unit was consulted, and the date of that consultation:

- Dr. Fred DeGraves (Agriculture; AGRO 452, 454, 455, 457) – 1/15/21
- Dr. Ray Blankenship (Information Systems; CIS 226) – 1/15/21
- Dr. Huanjing Wang (SEAS; CS 226) – 1/15/21
- Dr. Fred Siewers (Earth, Environmental, & Atmospheric Sciences; GEOG 328, GISC 417) – 1/15/21
- Dr. Bruce Kessler (Mathematics; MATH 142, 305, 307) – 1/15/21
- Dr. Mike Carini (Physics & Astronomy, PHYS 256/266) – 1/15/21
- Dr. Kevin Williams (Chemistry; CHEM 314) – 1/15/21

**Section 5: Proposed term for implementation: Fall 2021**

**Section 6: Approval Flow Dates:**

Department of Biology	_____ 30 October 2020
Ogden College Curriculum Committee	_____
Professional Education Council	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

**Section 7: Required Appendices: Current & proposed program descriptions:**



## 7.1 Current Program Description: (On a separate pages):

This option for a major in biology requires a minimum of 36 semester hours in biology with 18 hours at the 300 or higher level plus the requirements of a minor area or a second major. The major-minor / second major combination must be at least 54 total hours with 48 unduplicated hours.

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at [www.wku.edu/registrar/degree\\_certification.php](http://www.wku.edu/registrar/degree_certification.php).

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>.

<u>Required courses</u>	<u>Credits</u>	<u>Notes</u>
BIOL 120: Biol Concepts: Cells, Metabolism, and Genetics	3	Grade of "C" or higher
BIOL 121: Biol Concepts: Cells, Metabolism, and Genetics Lab	1	Grade of "C" or higher
BIOL 122: Biol Concepts: Evolution, Diversity, and Ecology	3	Grade of "C" or higher
BIOL 123: Biol Concepts: Evolution, Diversity, and Ecology Lab	1	Grade of "C" or higher
BIOL 489: Professional Aspects of Biology	1	

### Restrictive Electives

BIOL 222: Plant Biology and Diversity	3, and
BIOL 223: Plant Biology and Diversity Lab	1
or	
BIOL 224: Animal Biology and Diversity	3, and
BIOL 225: Animal Biology and Diversity Lab	
or	
BIOL 226: Microbial Biology and Diversity	3, and
BIOL 227: Microbial Biology and Diversity Lab	1
--	
BIOL 319: Introduction to Molecular and Cellular Biology	3, and
BIOL 322: Introduction to Molecular and Cellular Biology Lab	1
or	
BIOL 327: Genetics	3, and
BIOL 337: Genetics Lab	
--	
BIOL 315: Ecology	3
or	
BIOL 316: Evolution	3
--	

Students must also select three laboratory experience courses chosen from: BIOL 212, BIOL 312, BIOL 321, BIOL 322, BIOL 324, BIOL 325, BIOL 326, BIOL 328, BIOL 331, BIOL 337, BIOL 348, BIOL 350, BIOL 356, BIOL 400, BIOL 404, BIOL 405, BIOL 412, BIOL 447, BIOL 450, BIOL 456, BIOL 457, BIOL 458, BIOL 460, BIOL 470, BIOL 472, BIOL 485, BIOL 496, BIOL 497

Students must also select one science process course from: BIOL 212, BIOL 312, BIOL 331, BIOL 350, BIOL 397, BIOL 404, BIOL 407, BIOL 412, BIOL 456, BIOL 457, BIOL 470, BIOL 472, BIOL 495, BIOL 496, BIOL 497, or HON 404

In consultation with their advisor, students select majors-level coursework to obtain a minimum of 36 credits total, provided that at least 18 hours total are upper-division courses. Student may count up to



3 credit hours of a combination of BIOL 369 and BIOL 399, and up to 4 credit hours of BIOL 485 toward this major.

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Because an understanding of the principles of subjects outside of biology, in particular agriculture, chemistry, geography and geology, mathematics, physics, and sociology is essential to the study of biology, majors are required to complete supporting courses as follows:

1. MATH 116 and 117 or MATH 118 or higher
2. PHYS 231/PHYS 232 or PHYS 255/PHYS256
3. CHEM 120/CHEM 121, and
4. Two courses from the following list: AGRO 350 and AGRO 452 or AGRO 454 or AGRO 456/AGRO 456 or AGRO 457/AGRO 458, BIOL 382, CHEM 222/CHEM 223, CHEM 314 or CHEM 340/CHEM 341, CHEM 330, CIS 243, CIS 226 OR CS 146, GEOG 328, GISC 316, GISC 317, GISC 417, MATH 136, MATH 137, MATH 142, MATH 305, MATH 307, PHYS 332/233 or PHYS 265/PHYS 266, SOCL 302

**7.2 Proposed Program Description: (On a separate pages):**

<u>Required courses</u>	<u>Credits</u>	<u>Notes</u>
BIOL 120: Biol Concepts: Cells, Metabolism, and Genetics	3	Grade of "C" or higher
BIOL 121: Biol Concepts: Cells, Metabolism, and Genetics Lab	1	Grade of "C or higher
BIOL 122: Biol Concepts: Evolution, Diversity, and Ecology	3	Grade of "C" or higher
BIOL 123: Biol Concepts: Evolution, Diversity, and Ecology Lab	1	Grade of "C" or higher
BIOL 489: Professional Aspects of Biology	1	

Restrictive Electives

BIOL 222: Plant Biology and Diversity	3, and
BIOL 223: Plant Biology and Diversity Lab	1
or	
BIOL 224: Animal Biology and Diversity	3, and
BIOL 225: Animal Biology and Diversity Lab	
or	
BIOL 226: Microbial Biology and Diversity	3, and
BIOL 227: Microbial Biology and Diversity Lab	1
--	
BIOL 319: Introduction to Molecular and Cellular Biology	3, and
BIOL 322: Introduction to Molecular and Cellular Biology Lab	1
or	
BIOL 327: Genetics	3, and
BIOL 337: Genetics Lab	
--	
BIOL 315: Ecology	3
or	
BIOL 316: Evolution	3
--	

Students must also select three laboratory experience courses chosen from: BIOL 212, BIOL 312, BIOL 321, BIOL 322, BIOL 324, BIOL 325, **BIOL 326**, BIOL 328, BIOL 331, BIOL 337, BIOL 348, BIOL 350, **BIOL 355**, BIOL 356, BIOL 400, BIOL 404, BIOL 405, BIOL 412, BIOL 447, BIOL 450, BIOL 456, BIOL 457, BIOL 458, BIOL 460, BIOL 470, BIOL 472, BIOL 485, BIOL 496, BIOL 497

Students must also select one science process course from: BIOL 212, BIOL 312, BIOL 331, BIOL 350, **BIOL 355**, BIOL 397, BIOL 404, BIOL 407, BIOL 412, BIOL 456, BIOL 457, BIOL 470, BIOL 472, BIOL 495, BIOL 496, BIOL 497, or HON 404

In consultation with their advisor, students select majors-level coursework to obtain a minimum of 36 credits total, provided that at least 18 hours total are upper-division courses. Student may count up to 3 credit hours of a combination of BIOL 369 and BIOL 399, and up to 4 credit hours of BIOL 485 toward this major.

Because an understanding of the principles of subjects outside of biology, in particular agriculture, chemistry, geography and geology, mathematics, physics, and sociology is essential to the study of biology, majors are required to complete supporting courses as follows:

5. MATH 116 and 117 or **MATH 118 or higher** **MATH 136**
6. PHYS 231/PHYS 232 or PHYS 255/PHYS256

7. CHEM 120/CHEM 121, and
8. Two courses from the following list: AGRO 350 and AGRO 452 or AGRO 454 or AGRO 455/AGRO 456 or AGRO 457/AGRO 458, BIOL 382, CHEM 222/CHEM 223, CHEM 330, CHEM 314 or CHEM 340/CHEM 341, CHEM 330, CIS 243, CIS 226 OR CS 146, GEOG 328, GISC 316, GISC 317, GISC 417, MATH 136, MATH 137, MATH 142, MATH 305, MATH 307, PHYS 332/233 or PHYS 265/PHYS 266, SOCL 302



Biology (617)  
Ogden College of Science and Engineering  
Western Kentucky University

Biology with a minor - 4 year plan

**Success Markers**

<b>FIRST YEAR</b>	Fall Semester		Spring Semester		
	BIOL 120/121 or BIOL 122/123	4	BIOL 120/121 or BIOL 122/123	4	
	MATH 116 or Higher	3	MATH 117 or Higher	3	
	ENG 100	3	CHEM 120/121	5	
	HIST 101 or HIST 102	3	Course in Minor	3	
	<b>TOTAL CREDIT HOURS</b>		<b>13</b>	<b>TOTAL CREDIT HOURS</b>	
				<b>15</b>	

*Visit the Math Lab for free tutoring direct link to site*

*Chemistry and Math depend on Placement scores and must be passed with a "C" or better*

<b>SECOND YEAR</b>	Fall Semester		Spring Semester	
	BIOL 222/223 or 224/225 or 226/227 Organismal Biology	4	BIOL 319/322 Intro Cell Molec or 327/337 Genetics	4
	Course in Minor	3	ENG 200	3
	BIOL Science Supporting course with lab (see Biology Advisor)*	4	BIOL Science Supporting course with lab(see Biology Advisor)*	4
	Colonnade Explorations	3	Colonnade Explorations	3
	Course in Minor	3	Course in Minor	3
	<b>TOTAL CREDIT HOURS</b>		<b>17</b>	<b>TOTAL CREDIT HOURS</b>
			<b>17</b>	

*Plan a Study Abroad Trip, an Internship, Co-op or Conduct Research for the Summer (contact Biology faculty about opportunities!)*

*Ask at Office of Scholar Development about Prestigious scholarships!!*

<b>SUMMER TERM</b>	Summer Term	
	<b>TOTAL CREDIT HOURS</b>	
		<b>0</b>

*Consider conducting research, an internship, or study abroad*

THIRD YEAR	Fall Semester		Spring Semester	
	<i>Visit Career Services</i>  <i>Writing Center offers free help!!! direct link</i>	BIOL 315 Ecology or BIOL 316 Evolution	3	Upper Level BIOL Elective with Lab (see Biology Advisor)*
Comm 145		3	Colonnade Explorations	3
Colonnade Explorations		3	Upper Level BIOL Elective with Lab (see Biology Advisor)*	4
Upper Level BIOL Elective (see Biology Advisor)		3	Upper Level Course in Minor	3
Course in Minor		3	Writing in the Disciplines	3
<b>TOTAL CREDIT HOURS</b>		<b>16</b>	<b>TOTAL CREDIT HOURS</b>	<b>17</b>
SUMMER TERM		Summer Term	<i>Consider conducting research, an internship, or study abroad</i>	
	<b>TOTAL CREDIT HOURS</b>	<b>0</b>		

FOURTH YEAR	Fall Semester		Spring Semester	
	<i>Apply for Graduation (YEA) direct link</i>  <i>Celebrate</i>	BIOL 489	1	Upper Level BIOL Elective (see Biology Advisor)
Upper Level Course in Minor		3	Upper Level Course in Minor	3
Colonnade Connections		3	Colonnade Connections	3
World Language		3	Colonnade Connections	3
BIOL Process Elective (see Biology Major iCAP #6)		3		
<b>TOTAL CREDIT HOURS</b>		<b>13</b>	<b>TOTAL CREDIT HOURS</b>	<b>12</b>
<b>Total Credit hours : 120</b>				

This is a suggested program of study.

Student must maintain a "C" or better in 120-123 Biology courses and in some supporting courses.

\*Three Laboratory courses are required .

One science process course is required.

**For more Information:**

**Website:** <http://www.wku.edu/biology/>

**Email:** [biology@wku.edu](mailto:biology@wku.edu)

Course Descriptions (direct link): <http://www.wku.edu/biology/courses2.php>

## University Undergraduate Curriculum Proposal Checklist

Please complete the following checklist to ensure your proposal will proceed smoothly and efficiently. Include the checklist as a cover sheet with your proposal. Proposals without the checklist will be returned to the proponent.

- For new or revised programs, courses, or course descriptions, what departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Dr. Fred DeGraves (Agriculture, 1/15/21); Dr. Ray Blankenship (Information Systems; 1/15/21); Dr. Huanjing Wang (SEAS; 1/15/21); Dr. Fred Siewers (Earth, Environmental, & Atmospheric Sciences; 1/15/21); Dr. Bruce Kessler (Mathematics; 1/15/21); Dr. Mike Carini (Physics & Astronomy, 1/15/21); Dr. Kevin Williams (Chemistry; 1/15/21)

- What are the potential budget implications for this proposal? If any additional staffing is required, how will it be funded? If not, how will current staffing accommodate the proposed course/program?

None.

- If you are proposing a new undergraduate program or changes to an existing undergraduate program, please include a new or updated four-year degree pathway.

- Has the proposal been checked carefully for mechanics, grammar, syntax, and clarity?

Michael E. Smith

Digitally signed by Michael E. Smith  
DN: cn=Michael E. Smith, o=Western Kentucky  
University, ou=Department of Biology,  
email=michael.smith1@wku.edu, c=US  
Date: 2021.01.20 15:18:07 -0600

Department Head

Dean or Designee

1/20/2021

Date

Date



**Proposal to Revise a program: Major in Biology, 525**  
**Ogden College of Science and Engineering**  
**Department: Biology**

**Section 1: Proponent Contact Information**

- 1.1 Name/Title: Scott Grubbs/Professor of Biology
- 1.2 Email address: scott.grubbs@wku.edu
- 1.3 Phone #: 270 202-6981

**Section 2: Program Information**

- 2.1 Current Program reference number: 525
- 2.2 Current Program title: Major in Biology
- 2.3 Current total number of credits required in the program: 48

**Section 3: Proposed program revisions and rationales**

- 3.1 Addition of Ecology Lab (BIOL 355) to the laboratory experience course list. Prior to 2015, Ecology (315) was a 4.5 credit course with an embedded lab. The lab was removed and subsequently re-added as a stand-alone course (BIOL 355). Program 525 requires five laboratory courses. BIOL 355 provides a rigorous laboratory experience for students that should be added to the lab course list for 525 majors.
- 3.2 Addition of Ecology Lab (BIOL 355) to the science process course list. Prior to 2015, Ecology (315) was a 4.5 credit course with an embedded lab. The lab was removed and subsequently re-added as a stand-alone course (BIOL 355). Program 525 requires one science process course. BIOL 355 also provides a rigorous science process experience for students that should be added to the science process course list for 525 majors.
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- 3.4 Change and simplify MATH requirement language from "MATH 116 and 117 or MATH 118 or higher" to "MATH 116 and MATH 117 or MATH 136". Both MATH 118 and MATH 142 (Calculus with Applications for Life Sciences) are no longer options for students since neither has been taught for several years. The present "or higher" language is diffuse and too open for interpretation. The propose change provides clarity for students, advisors, and Biology faculty and staff.
- 3.5 Reduce the "4. Two courses from the following list:" from 25 (corequisite labs were not counted separately) to 13 supporting courses. I looked at six academic years of data for all Biology majors to assess frequency trends for all 25 courses. Total enrollment across the six years was 0 for six courses (AGRO 455/AGRO 456, CS 226, CIS 226, GISC 417,

MATH 305, PHYS 265/PHYS 266), 1 for three courses (AGRO 454, AGRO 457/AGRO 458, MATH 307), 3 for AGRO 452, 5 for GEOG 328 and 6 for CHEM 314. Overall, the removal of 12 courses is a simplification for students and Biology advisors for supporting courses that are of no/little interest to students or for courses that had either no longer available or not offered in years (e.g., CHEM 314). MATH 142 is also being removed for the same reasons as stated above in 3.3.

**Section 4: Consultations**

Do any of the proposed revisions in section 3 above involve or in any other way impact other departments/units? YES NO

If NO, simply proceed to item 5.

If YES, identify those revisions here, referring to them by the numbers assigned in section 3 above, and for each, indicate who in the affected department/unit was consulted, and the date of that consultation:

- Dr. Fred DeGraves (Agriculture; AGRO 452, 454, 455, 457) – 1/15/21
- Dr. Ray Blankenship (Information Systems; CIS 226) – 1/15/21
- Dr. Huanjing Wang (SEAS; CS 226) – 1/15/21
- Dr. Fred Siewers (Earth, Environmental, & Atmospheric Sciences; GEOG 328, GISC 417) – 1/15/21
- Dr. Bruce Kessler (Mathematics; MATH 142, 305, 307) – 1/15/21
- Dr. Mike Carini (Physics & Astronomy, PHYS 256/266) – 1/15/21
- Dr. Kevin Williams (Chemistry; CHEM 314) – 1/15/21

**Section 5: Proposed term for implementation: Fall 2021**

**Section 6: Approval Flow Dates:**

Department of Biology	<u>30 October 2020</u>
Ogden College Curriculum Committee	_____
Professional Education Council	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

**Section 7: Required Appendices: Current & proposed program descriptions:**



## 7.1 Current Program Description: (On a separate pages):

This option for a major in biology requires a minimum of 48 hours in biology with 24 hours at the 300 or higher level. No minor is required. A range of upper level courses are available in ecology and evolutionary biology, molecular and cellular biology, plant biology, animal biology, and microbiology.

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at [www.wku.edu/registrar/degree\\_certification.php](http://www.wku.edu/registrar/degree_certification.php).

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>.

<u>Required courses</u>	<u>Credits</u>	<u>Notes</u>
BIOL 120: Biol Concepts: Cells, Metabolism, and Genetics	3	Grade of "C" or higher
BIOL 121: Biol Concepts: Cells, Metabolism, and Genetics Lab	1	Grade of "C" or higher
BIOL 122: Biol Concepts: Evolution, Diversity, and Ecology	3	Grade of "C" or higher
BIOL 123: Biol Concepts: Evolution, Diversity, and Ecology Lab	1	Grade of "C" or higher
BIOL 489: Professional Aspects of Biology	1	

### Restrictive Electives

BIOL 222: Plant Biology and Diversity	3, and
BIOL 223: Plant Biology and Diversity Lab	1
or	
BIOL 224: Animal Biology and Diversity	3, and
BIOL 225: Animal Biology and Diversity Lab	
or	
BIOL 226: Microbial Biology and Diversity	3, and
BIOL 227: Microbial Biology and Diversity Lab	1
--	
BIOL 319: Introduction to Molecular and Cellular Biology	3, and
BIOL 322: Introduction to Molecular and Cellular Biology Lab	1
or	
BIOL 327: Genetics	3, and
BIOL 337: Genetics Lab	
--	
BIOL 315: Ecology	3
or	
BIOL 316: Evolution	3
--	

Students must also select five laboratory experience courses chosen from: BIOL 212, BIOL 312, BIOL 321, BIOL 322, BIOL 324, BIOL 325, BIOL 326, BIOL 328, BIOL 331, BIOL 337, BIOL 348, BIOL 350, BIOL 356, BIOL 400, BIOL 404, BIOL 405, BIOL 412, BIOL 447, BIOL 450, BIOL 456, BIOL 457, BIOL 458, BIOL 460, BIOL 470, BIOL 472, BIOL 485, BIOL 496, BIOL 497

Students must also select one science process course from: BIOL 212, BIOL 312, BIOL 331, BIOL 350, BIOL 397, BIOL 404, BIOL 407, BIOL 412, BIOL 456, BIOL 457, BIOL 470, BIOL 472, BIOL 495, BIOL 496, BIOL 497, or HON 404

In consultation with their advisor, students select majors-level coursework to obtain a minimum of 48 credits total, provided that at least 24 hours total are upper-division courses. Student may count up to



6 credit hours of a combination of BIOL 369 and BIOL 399, and up to 4 credit hours of BIOL 485 toward this major.

--

Because an understanding of the principles of subjects outside of biology, in particular agriculture, chemistry, geography and geology, mathematics, physics, and sociology is essential to the study of biology, majors are required to complete supporting courses as follows:

9. MATH 116 and 117 or MATH 118 or higher
10. PHYS 231/PHYS 232 or PHYS 255/PHYS256
11. CHEM 120/CHEM 121, and
12. Two courses from the following list: AGRO 350 and AGRO 452 or AGRO 454 or AGRO 456/AGRO 456 or AGRO 457/AGRO 458, BIOL 382, CHEM 222/CHEM 223, CHEM 314 or CHEM 340/CHEM 341, CHEM 330, CIS 243, CIS 226 OR CS 146, GEOG 328, GISC 316, GISC 317, GISC 417, MATH 136, MATH 137, MATH 142, MATH 305, MATH 307, PHYS 332/233 or PHYS 265/PHYS 266, SOCL 302

## 7.2 Proposed Program Description: (On a separate pages):

<u>Required courses</u>	<u>Credits</u>	<u>Notes</u>
BIOL 120: Biol Concepts: Cells, Metabolism, and Genetics	3	Grade of "C" or higher
BIOL 121: Biol Concepts: Cells, Metabolism, and Genetics Lab	1	Grade of "C" or higher
BIOL 122: Biol Concepts: Evolution, Diversity, and Ecology	3	Grade of "C" or higher
BIOL 123: Biol Concepts: Evolution, Diversity, and Ecology Lab	1	Grade of "C" or higher
BIOL 489: Professional Aspects of Biology	1	

### Restrictive Electives

BIOL 222: Plant Biology and Diversity	3, and
BIOL 223: Plant Biology and Diversity Lab	1
or	
BIOL 224: Animal Biology and Diversity	3, and
BIOL 225: Animal Biology and Diversity Lab	
or	
BIOL 226: Microbial Biology and Diversity	3, and
BIOL 227: Microbial Biology and Diversity Lab	1
--	
BIOL 319: Introduction to Molecular and Cellular Biology	3, and
BIOL 322: Introduction to Molecular and Cellular Biology Lab	1
or	
BIOL 327: Genetics	3, and
BIOL 337: Genetics Lab	
--	
BIOL 315: Ecology	3
or	
BIOL 316: Evolution	3
--	

Students must also select five laboratory experience courses chosen from: BIOL 212, BIOL 312, BIOL 321, BIOL 322, BIOL 324, BIOL 325, **BIOL 326**, BIOL 328, BIOL 331, BIOL 337, BIOL 348, BIOL 350, **BIOL 355**, BIOL 356, BIOL 400, BIOL 404, BIOL 405, BIOL 412, BIOL 447, BIOL 450, BIOL 456, BIOL 457, BIOL 458, BIOL 460, BIOL 470, BIOL 472, BIOL 485, BIOL 496, BIOL 497

Students must also select one science process course from: BIOL 212, BIOL 312, BIOL 331, BIOL 350, **BIOL 355**, BIOL 397, BIOL 404, BIOL 407, BIOL 412, BIOL 456, BIOL 457, BIOL 470, BIOL 472, BIOL 495, BIOL 496, BIOL 497, or HON 404

In consultation with their advisor, students select majors-level coursework to obtain a minimum of 48 credits total, provided that at least 24 hours total are upper-division courses. Student may count up to 6 credit hours of a combination of BIOL 369 and BIOL 399, and up to 4 credit hours of BIOL 485 toward this major.

Because an understanding of the principles of subjects outside of biology, in particular agriculture, chemistry, geography and geology, mathematics, physics, and sociology is essential to the study of biology, majors are required to complete supporting courses as follows:

13. MATH 116 and 117 or **MATH 118 or higher MATH 136**
14. PHYS 231/PHYS 232 or PHYS 255/PHYS256

15. CHEM 120/CHEM 121, and
16. Two courses from the following list: AGRO 350 and AGRO 452 or AGRO 454 or AGRO 455/AGRO 456 or AGRO 457/AGRO 458, BIOL 382, CHEM 222/CHEM 223, CHEM 330, CHEM 314 or CHEM 340/CHEM 341, CHEM 330, CIS 243, CIS 226 OR CS 146, GEOG 328, GISC 316, GISC 317, GISC 417, MATH 136, MATH 137, MATH 142, MATH 305, MATH 307, PHYS 332/233 or PHYS 265/PHYS 266, SOCL 302



Biology (525)  
Ogden College of Science and Engineering  
Western Kentucky University

Biology without a minor - 4 year plan

**Success Markers**

<b>FIRST YEAR</b>  <i>Visit the Math Lab for free tutoring direct link to site</i>  <i>Chemistry and Math depends on Placement scores and must be passed with a "C" or better</i>	Fall Semester		Spring Semester	
	BIOL 120/121 or BIOL 122/123	4	BIOL 120/121 or BIOL 122/123	4
	MATH 116 or Higher	3	MATH 117 or Higher	3
	ENG 100	3	Colonnade Explorations	3
	HIST 101 or HIST 102	3	CHEM 120/121	5
	<b>TOTAL CREDIT HOURS</b>	<b>13</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>

<b>SECOND YEAR</b>  <i>Plan a Study Abroad Trip, an Internship, Co-op or Conduct Research for the Summer (contact Biology faculty about opportunities!)</i>  <i>Ask at Office of Scholar Development about Prestigious scholarships!!</i>	Fall Semester		Spring Semester	
	Organismal Biology: BIOL 222/223 or 224/225 or 226/227	4	Mol & Cell / Genetics: BIOL 319/322 or 327/337	4
			ENG 200	3
	BIOL Science Supporting course (see Biology Advisor)	4	BIOL Science Supporting course (see Biology Advisor)	4
	Colonnade Explorations	3		
	Upper Level BIOL Elective with lab (see Biology Advisor)*	4	Upper Level BIOL Elective with lab (see Biology Advisor)*	4
	<b>TOTAL CREDIT HOURS</b>	<b>15</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>

<b>SUMMER TERM</b>	Summer Term	
	<b>TOTAL CREDIT HOURS</b>	<b>0</b>

*Consider conducting research, an internship, or study abroad*

THIRD YEAR	Fall Semester		Spring Semester	
	<i>Visit Career Services</i>  <i>Writing Center offers free help!!! direct link</i>	BIOL 315 Ecology or BIOL 316 Evolution	3	Upper Level BIOL Elective with lab (see Biology Advisor)
COMM 145		3	Upper Level BIOL Elective (see Biology Advisor)	3
Colonnade Explorations		3	Upper Level BIOL Elective with lab (see Biology Advisor)*	4
Upper Level BIOL Elective with lab (see Biology Advisor)*		4	Colonnade Connections	3
Colonnade Explorations		3	Writing in the Disciplines Foundations	3
<b>TOTAL CREDIT HOURS</b>		<b>16</b>	<b>TOTAL CREDIT HOURS</b>	<b>17</b>
SUMMER TERM	Summer Term		<i>Consider conducting research, an internship, or study abroad</i>	
	<b>TOTAL CREDIT HOURS</b>	<b>0</b>		

FOURTH YEAR	Fall Semester		Spring Semester	
	<i>Apply for Graduation (YEA) direct link</i>  <i>Celebrate</i>	BIOL 489	1	Upper Level BIOL Elective (see Biology Advisor)
Upper Level BIOL Elective (see Biology Advisor)		4	Upper Level BIOL Elective (see Biology Advisor)	4
Colonnade Connections		3	Colonnade Connections	3
World Language		3	Upper Level BIOL Elective (see Biology Advisor)	4
BIOL Process Elective (see Biology Major iCAP #6)		3		
<b>TOTAL CREDIT HOURS</b>		<b>14</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>
<b>Total Credit hours :</b>				<b>120</b>

This is a suggested program of study.

Student must maintain a "C" or better in 120-123 Biology courses and in some supporting courses.

\*Five Laboratory courses are required.

One science process course is required.

**For more Information:**

**Website:** <http://www.wku.edu/biology/>

**Email:** [biology@wku.edu](mailto:biology@wku.edu)

**Course Descriptions (direct link):** <http://www.wku.edu/biology/courses2.php>

## University Undergraduate Curriculum Proposal Checklist

Please complete the following checklist to ensure your proposal will proceed smoothly and efficiently. Include the checklist as a cover sheet with your proposal. Proposals without the checklist will be returned to the proponent.

- For new or revised programs, courses, or course descriptions, what departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Dr. Fred DeGraves (Agriculture, 1/15/21); Dr. Ray Blankenship (Informations Systems; 1/15/21); Dr. Huanjing Wang (SEAS; 1/15/21); Dr. Fred Siewers (Earth, Environmental, & Atmospheric Sciences; 1/15/21); Dr. Bruce Kessler (Mathematics; 1/15/21); Dr. Mike Carini (Physics & Astronomy, 1/15/21); Dr. Kevin Williams (Chemistry; 1/15/21)

- What are the potential budget implications for this proposal? If any additional staffing is required, how will it be funded? If not, how will current staffing accommodate the proposed course/program?

None.

- If you are proposing a new undergraduate program or changes to an existing undergraduate program, please include a new or updated four-year degree pathway.
- Has the proposal been checked carefully for mechanics, grammar, syntax, and clarity?

Michael E. Smith

Digitally signed by Michael E. Smith  
DN: cn=Michael E. Smith, o=Western Kentucky  
University, ou=Department of Biology,  
email=michael.smith1@wku.edu, c=US  
Date: 2021.01.20 15:17:26 -0600

Department Head

Dean or Designee

1/20/2021

Date

Date



**Proposal to Revise a program: Mathematical Economics (731)**  
**Gordon Ford College of Business**  
**Ogden College of Science and Engineering**

**Department/Unit:** Economics, Mathematics

### **Section 1: Proponent Contact Information**

**1.1 Name/Title:**

Dr. Alex Lebedinsky, Professor and Chair, Economics Department; Dr. Melanie Autin, Associate Professor, Mathematics Department

**1.2 Email address:** alex.lebedinsky@wku.edu; melanie.autin@wku.edu

**1.3 Phone #:** 270-745-3150; 270-745-3651

### **Section 2: Program Information**

**2.1 Classification of Instructional Program (CIP) reference number:** 45.0603

**2.2 Current Program title:** Mathematical Economics (731)

**2.3 Current total number of credits required in the program:** 61-62

### **Section 3: Proposed program revisions and rationales**

**3.1 First proposed revision:** Add FIN 334 (Financial Mathematics) as a required course in Actuarial Science concentration of the program. The rationale for adding this course is to help students prepare for the Financial Mathematics (FM) actuarial exam. To become an actuary, one has to take a series of professional exams administered by the Society of Actuaries (SOA). Actuarial students at WKU have not been adequately prepared for the FM exam due to a lack of courses directly aimed at the material covered in this exam. Universities with successful actuarial programs typically offer at least two courses to help students prepare for the actuarial exams – Probability (P) and FM exams. Currently, the program prepares students only for the P exam.

This course will also include a significant career preparation component. Student will be advised on when they should take actuarial exams, when and how to apply for internships, and what kind of jobs they should apply for after completing their degrees.

**3.2 Second proposed revision:** Add STAT 330 Introduction to Statistical Software so that students can take either CS 170, or CS 180, or STAT 330 in the Actuarial Science concentration. Currently, the Actuarial Science concentration in the Mathematical Economics major requires students to take either CS 170 or CS 180. In STAT 330, students learn to program in both SAS and R. They also learn data management skills in both platforms. These programming languages, as well as data management, are the skills that are in demand in the actuarial profession, so STAT 330 will better prepare the students for careers in this industry.

**Section 4: Consultations:** The first proposed change affects Finance department. Dr. Indudeep Chhachhi, the chair of the Finance Department, was consulted on November 6th and was supportive of the course.





MATH 237	Multivariable Calculus	4
MATH 307	Introduction to Linear Algebra	3
ECON/MATH 497	Senior Seminar in Mathematical Economics	1
Total Hours		34

**General Mathematical Economics Concentration**

ECON 306	Statistical Analysis	3
or ECON 307	Financial Data Modeling	
ECON 464	Introduction to Mathematical Economics	3
Select 3 hours of 300- and 400-level economics electives		3
MATH 331	Differential Equations	3
or MATH 310	Introduction to Discrete Mathematics	
Select one of the following:		3
MATH 331	Differential Equations	
MATH 310	Introduction to Discrete Mathematics	
MATH 305	Introduction to Mathematical Modeling	
MATH 382	Probability and Statistics I	
MATH 435	Partial Differential Equations	
MATH 405	Numerical Analysis I	
Total Hours		15

**Actuarial Science Concentration**

ECON 307	Financial Data Modeling	3
MATH 310	Introduction to Discrete Mathematics	3
MATH 382	Probability and Statistics I	3
MATH 482	Probability and Statistics II	3
FIN 330	Principles of Finance	3
FIN 332	Investment Theory	3
FIN 350	Risk Management and Insurance	3
FIN 437	Corporate Asset Management	3
<b>CS 170</b>	<b>Problem Solving and Programming</b>	<b>3</b>
or CS 180	Computer Science I	
Total Hours		<b>27</b>

**7.2: Proposed B.S. in Mathematical Economics**

The major in Mathematical Economics requires a total of 120 credit hours with a core of 18 hours in economics, 15 hours in mathematics, and 1 hour of an interdisciplinary seminar course. The concentration in general mathematical economics requires an additional 9 hours in economics and 6 hours in mathematics. The concentration in actuarial science requires an additional 3 hours in economics, 9 hours in mathematics, 15 hours in finance, and 3-4 hours in computer



science. This major leads to a Bachelor of Science degree intended for students interested in graduate studies in economics, public policy, or business, as well as those students seeking a career as an actuary or analytical careers that will require extensive mathematics backgrounds.

The program of study does not require completion of a second major or minor.

#### Core Courses

ECON 202	Principles of Economics (Micro)	3
ECON 203	Principles of Economics (Macro)	3
ECON 206	Statistics	3
or STAT 301	Introductory Probability and Applied Statistics	
ECON 302	Microeconomic Theory	3
ECON 303	Macroeconomic Theory	3
Select one of the following:		3
ECON 465	Regression and Econometric Analysis	
ECON 480	Economic Forecasting	
STAT 401	Regression Analysis	
MATH 136	Calculus I	4
MATH 137	Calculus II	4
MATH 237	Multivariable Calculus	4
MATH 307	Introduction to Linear Algebra	3
ECON/MATH 497	Senior Seminar in Mathematical Economics	1
Total Hours		34

#### General Mathematical Economics Concentration

ECON 306	Statistical Analysis	3
or ECON 307	Financial Data Modeling	
ECON 464	Introduction to Mathematical Economics	3
Select 3 hours of 300- and 400-level economics electives		3
MATH 331	Differential Equations	3
or MATH 310	Introduction to Discrete Mathematics	
Select one of the following:		3
MATH 331	Differential Equations	
MATH 310	Introduction to Discrete Mathematics	
MATH 305	Introduction to Mathematical Modeling	
MATH 382	Probability and Statistics I	
MATH 435	Partial Differential Equations	
MATH 405	Numerical Analysis I	
Total Hours		15

#### Actuarial Science Concentration

ECON 307	Financial Data Modeling	3
MATH 310	Introduction to Discrete Mathematics	3

MATH 382	Probability and Statistics I	3
MATH 482	Probability and Statistics II	3
FIN 330	Principles of Finance	3
FIN 332	Investment Theory	3
<b>FIN 334</b>	<b>Financial Mathematics</b>	<b>3</b>
FIN 350	Risk Management and Insurance	3
FIN 437	Corporate Asset Management	3
CS 170	Problem Solving and Programming	<b>3-4</b>
or CS 180	Computer Science I	
<b>    or STAT 330</b>	<b>Introduction to Statistical Software</b>	
Total Hours		<b>30-31</b>

**BACHELOR of SCIENCE in MATHEMATICAL ECONOMICS (#731)**  
**ACTUARIAL SCIENCE CONCENTRATION**  
 Department of Mathematics/Department of Economics  
 Ogden College of Science and Engineering/Gordon Ford College of Business  
 Western Kentucky University

The suggested program of study shown below should be used in consultation with your advisor(s).  
 Every student will finish with a unique plan of his/her own depending on the electives selected.

**Sample, Four Year Plan**

Fall Semester		Spring Semester	
BA 170, Business Student Basics	1	ECON 202, Principles of Economics, Micro (E-SB)	3
ENG 100, Introduction to College Writing (F-W1)	3	COMM 145, Fund Speaking (F-OC)	3
General University Elective	3	HIST 101 or 102, World History I or II (F-SB)	3
Arts & Humanities (E-AH)	3	Math 137, Calculus II	4
MATH 136, Calculus I (F-QR)	4	Natural & Physical Sciences with lab (E-SL)	3
<b>TOTAL CREDIT HOURS</b>	<b>14</b>	<b>TOTAL CREDIT HOURS</b>	<b>16</b>

Fall Semester		Spring Semester	
ACCT 200, Introductory Accounting, Financial	3	CS 170, Problem Solving and Programming <b>OR</b> CS 180, Computer Science I <b>OR</b> STAT 330 Introduction to Statistical Software	3
Literary Studies (F-AH)	3	FIN 330, Principles of Financial Management	3
ECON 203, Principles of Economics, Macro	3	ECON 206, Statistics <b>OR</b> STAT 301, Prob/Applied Stat	3
MATH 307, Introduction to Linear Algebra	3	MATH 237, Multivariable Calculus	4
MATH 310, Introduction to Discrete Math	3	Natural & Physical Sciences (E-NS)	3
<b>TOTAL CREDIT HOURS</b>	<b>15</b>	<b>TOTAL CREDIT HOURS</b>	<b>16</b>

For more details and courses offered in the **Colonnade General Education** program visit the <https://www.wku.edu/colonnade/>.

Language Proficiency of novice-high before completing 60 credit hours is required (or completion of 2<sup>nd</sup> level of a language). Two credits (or equivalent) of a single world language in High School satisfies this WKU requirement.



**Admission to the Major:** To gain admission to the Math Econ (Actuarial Sciences) major students must have a minimum 2.0 overall GPA. They must also complete MATH 136, ECON 202, ECON203, and ECON 206/STAT 301 with a separately calculated 2.0 GPA.

Fall Semester		Spring Semester	
Connections <sup>1</sup> (K-SC or K-LG or K-SY)	3	ECON 303, Macroeconomic Theory	3
ECON 302, Microeconomic Theory	3	FIN 332, Investment Theory	3
ECON 307, Financial Data Modeling	3	FIN 350, Risk Management and Insurance	3
FIN 334, Financial Mathematics	3	MATH 482, Probability and Statistics II (VEE credit)	3
MATH 382, Probability and Statistics I	3	Writing in the Disciplines (F-W2)	3
<b>TOTAL CREDIT HOURS</b>	<b>15</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>

Fall Semester		Spring Semester	
General University Elective	3	Connections <sup>3</sup> (K-SC or K-LG or K-SY)	3
ECON 465, Regression and Econometric Analysis OR STAT 401, Regression Analysis OR ECON 480, Economic Forecasting *	3	ECON 497 OR MATH 497, Senior Seminar in Mathematical Economics	1
FIN 437, Corporate Asset Management	3	General University Elective	3
FIN 438, Corporate Funds Management*	3	General University Elective	3
Connections <sup>2</sup> (K-SC or K-LG or K-SY)	3	General University Upper-Division Elective	3
		General University Elective	1
<b>TOTAL CREDIT HOURS</b>	<b>15</b>	<b>TOTAL CREDIT HOURS</b>	<b>14</b>

**Total Credit Hours: 120**

\*FIN 438 is not required for the degree but is recommended to help prepare for actuarial exams.

**Departments:** Mathematics, College High Hall 4124      Economics, Grise Hall 432  
**Phone:** (270) 745-3651      (270) 745-2249  
**Website:** [www.wku.edu/math](http://www.wku.edu/math)      [www.wku.edu/economics](http://www.wku.edu/economics)  
**Email:** [math@wku.edu](mailto:math@wku.edu)      [econ@wku.edu](mailto:econ@wku.edu)  
**Course Descriptions:** <http://www.wku.edu/undergraduatecatalog/>

## University Undergraduate Curriculum Proposal Checklist

Please complete the following checklist to ensure your proposal will proceed smoothly and efficiently. Include the checklist as a cover sheet with your proposal. Proposals without the checklist will be returned to the proponent.

- For new or revised programs, courses, or course descriptions, what departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.


Department of Finance - Dr. Indudeep Chhachhi (chair) was consulted on November 6, 2020 and was supportive of the added course.

School of Engineering and Applied Sciences - Dr. Stacy Wilson (director) was consulted on October 20, 2020 and had no objections to the change in computer science requirement.

- What are the potential budget implications for this proposal? If any additional staffing is required, how will it be funded? If not, how will current staffing accommodate the proposed course/program?

The program change includes a new course - FIN 334 (Financial Mathematics) - in the Actuarial Science concentration of the Mathematical Economics major. Based on the number of the students in the major, one section per year of this course will be sufficient to meet the demand for the foreseeable future. This course will be taught by the Economics faculty, and can be covered with existing staffing, so no additional resources are needed to implement this program change.

- If you are proposing a new undergraduate program or changes to an existing undergraduate program, please include a new or updated four-year degree pathway.
- Has the proposal been checked carefully for mechanics, grammar, syntax, and clarity?

  
Digitally signed by Kessler, Bruce  
DN: cn=Kessler, Bruce, o=Western Kentucky  
University, ou=Department of Mathematics,  
email=bruce.kessler@wku.edu, c=US  
Date: 2020.12.09 12:54:24 -06'00'

Department Head

12/9/2020

Date

Dean or Designee

Date