



Course Approval Form

For approval of new courses and deletions or modifications to an existing course.

registrar.gmu.edu/facultystaff/curriculum

Action Requested:

- ☒ Create new course ☐ Inactivate existing course
- ☒ Modify existing course (check all that apply)
- ☒ Title ☒ Credits ☐ Repeat Status ☐ Grade Type
- ☐ Prereq/coreq ☐ Schedule Type ☐ Restrictions
- ☒ Other: Updated catalog copy for BIOL140, which was last taught in 1978.

Course Level:

- ☒ Undergraduate
- ☐ Graduate

College/School: Science Department: Biology

Submitted by: Andrea Weeks Ext: 3-3488 Email: aweeks3@gmu.edu

Subject Code: BIOL Number: 140 Effective Term: ☐ Fall ☒ Spring ☐ Summer Year: 2016

(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Title: Current Plants and Man

Banner (30 characters max including spaces)

New Plants and People

Credits: ☒ 3 Fixed ☐ or ☐ Variable to

Repeat Status: ☒ Not Repeatable (NR) ☐ Repeatable within degree (RD) ☐ Repeatable within term (RT)

Maximum credits allowed: ☐

Grade Mode: ☒ Regular (A, B, C, etc.) ☐ Satisfactory/No Credit ☐ Special (A, B, C, etc. +IP)

Schedule Type: ☒ Lecture (LEC) ☐ Lab (LAB) ☐ Recitation (RCT) ☐ Internship (INT)

LEC can include LAB or RCT

Instructional Mode: ☒ 100% face-to-face ☐ Hybrid: ≤ 50% electronically delivered ☐ 100% electronically delivered

☐ Independent Study (IND) ☐ Seminar (SEM) ☐ Studio (STU)

Prerequisite(s): none

Corequisite(s):

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code.

Are there equivalent course(s)? ☐ Yes ☒ No

If yes, please list

Catalog Copy for NEW Courses Only (Consult University Catalog for models)

Description (No more than 60 words, use verb phrases and present tense)	Notes (List additional information for the course)
An introduction to the interaction of plants and people from a biological perspective and the tools to continue life-long critical evaluation of emerging issues in human nutrition, agriculture, medicine, and global environmental change as they relate to plant biology.	
Indicate number of contact hours: <input type="checkbox"/> Fall <input type="checkbox"/> Summer <input checked="" type="checkbox"/> Spring	Hours of Lecture or Seminar per week: 3 Hours of Lab or Studio: <input type="checkbox"/>

Approval Signatures

Department Approval _____ Date _____ College/School Approval _____ Date _____

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Graduate Courses Only

Graduate Council Member _____ Provost Office _____ Graduate Council Approval Date _____

For Registrar Office's Use Only: Banner _____ Catalog _____

revised 11/8/11

COURSE NUMBER AND TITLE: Plants and People

Course Prerequisites/Co-requisite:

none

Catalog Description:

An introduction to the interaction of plants and people from a biological perspective and the tools to continue life-long critical evaluation of emerging issues in human nutrition, agriculture, medicine, and global environmental change as they relate to plant biology.

2. COURSE JUSTIFICATION:

Course Objectives:

By the end of the course students will be able to:

1. Compare and contrast the goals of economic and ethnobotany.
2. Describe how the green plant lineage is distinct from other organisms traditionally covered under botany.
3. Describe the vascular plant body as well as the organs and tissues of plants used by people.
4. Describe the evolutionary origin, domestication, and agricultural production of the major grass, legume and starchy staple crops of the world.
5. Describe the range of plant species utilized personally on a day-to-day basis, their nutritional contributions (if applicable), and the geographical source of these commodities.
6. Discuss the similarities and differences of human-induced genetic modifications of plants, from ancient plant domestication to selective plant breeding of the 20th century Green Revolution to 21st century transgenic crops.
7. Describe the history of plants in human medicine.
8. Provide case-examples of scientific studies versus pseudoscientific claims regarding the efficacy of plants as medicine in the form of drugs, herbal or nutritional supplements.
9. Describe the biological basis for stimulant, addictive and psychoactive properties of plant products.
10. Describe the role of plants in the global carbon cycle and their use as indicators of global environmental change from personal participation in a citizen-science project.

Course Necessity:

BIOL 140 fulfills two Biology Department needs and as well as answers two University-wide deficits in course offerings. Within the Biology department, there is an acknowledged lack of plant science undergraduate courses due to the retirement of BIOL304 (Plant Biology) three years ago. Moreover, there is a lack of non-majors' lecture-only biology courses. At the University level, the Mason Core Natural Science Requirement contains no approved non-lab 3-credit courses from the Biology Department. It is our intention to obtain Mason Course Course Approval for BIOL140. Lastly, the subject matter of BIOL140 is very timely in responding to growing university-wide student interest in agriculture and sustainable food systems. The target enrollment is 35 students.

Course Relationship to Existing Programs:

New Century College regularly offers a 6-credit People, Plants and Culture (NCLC 375) course that emphasizes experiential learning and the anthropological dimension of ethnobotany. Thus, it serves a different student population and covers different topics than BIOL 140. ESP lists People, Plants and Culture (EVPP335) as a 3-credit Synthesis Course that is team taught by a natural and social scientist. However, this course has not been taught in over 5 years and the creator of this course (Andrea Weeks, also the creator of BIOL140) does not intend to teach EVPP335 again.

Course Relationship to Existing Courses:

This course would be applicable to any undergraduate student at Mason who wants to learn more about plants or biology. The course would not count as an elective toward the Biology Major, however. As stated previously, it is our intention to obtain Mason Course Course Approval for BIOL140 as a 3-credit non-lab Natural Science core class. Thus, BIOL 140 could be an integral part of the bachelor's degree process for many Mason students.

3. APPROVAL HISTORY:

BIOL140 has existed with a lab component but has not been taught since 1978. It was previously called, "Plants and Man."

4. SCHEDULING AND PROPOSED INSTRUCTORS:**Semester of Initial Offering:**

Spring 2016

Proposed Instructors:

Andrea Weeks

BIOL 140 – Plants and People (3 credits)

SPRING 2016 SYLLABUS

Lecture time & location: M/W/F TBD,

Instructor: Dr. Andrea Weeks, aweeks3@gmu.edu. Electronic communication policy: I reply to emails within 24 hrs, M-F, 8 am-5 pm.

Office Hours: W 8-10 am, Ted R. Bradley Herbarium Exploratory Hall L109 or by appointment.

Course Prerequisites: None.

Required Texts:

1. Levetin, E. and K. McMahon. 2012. Plants & Society. Sixth Edition. McGraw-Hill

COURSE GOALS: This course is designed to give you a thorough introduction to the interaction of plants and people from a biological perspective and the tools to continue life-long critical evaluation of emerging issues in human nutrition, agriculture, medicine, and global environmental change as they relate to plant biology.

COURSE OBJECTIVES: By the end of the course you should be able to:

11. Compare and contrast the goals of economic and ethnobotany.
12. Describe how the green plant lineage is distinct from other organisms traditionally covered under botany.
13. Describe the vascular plant body as well as the organs and tissues of plants used by people.
14. Describe the evolutionary origin, domestication, and agricultural production of the major grass, legume and starchy staple crops of the world.
15. Describe the range of plant species utilized personally on a day-to-day basis, their nutritional contributions (if applicable), and the geographical source of these commodities.

16. Discuss the similarities and differences of human-induced genetic modifications of plants, from ancient plant domestication to selective plant breeding of the 20th century Green Revolution to 21st century transgenic crops.
17. Describe the history of plants in human medicine.
18. Provide case-examples of scientific studies versus pseudoscientific claims regarding the efficacy of plants as medicine in the form of drugs, herbal or nutritional supplements.
19. Describe the biological basis for stimulant, addictive and psychoactive properties of plant products.
20. Describe the role of plants in the global carbon cycle and their use as indicators of global environmental change.

GRADING:	Exam 1	20%	Letter grades:	A+ = 97-100%
	Exam 2	20%		A = 94-96%
	Exam 3	20%		A- = 90-93%
	Homework Projects	15%		B+ = 87-89%
	Participation	5%		B = 84-86%
	<u>Final Exam</u>	<u>20%</u>		B- = 80-83%
		100%		C+ = 77-79%
				C = 74-76%
				C- = 70-73%
				D = 60-69%
				F = 0-59%

ACADEMIC INTEGRITY: Students are required to follow the University Honor Code. In the context of this course, this means one must not “cheat, plagiarize, steal, or lie in matters related to academic work” (see <http://academicintegrity.gmu.edu/>). Suspected violations are referred to the Mason Honor Committee for adjudication. In the context of this course, two issues bear emphasizing. 1) Do homework projects by yourself, independent of others. 2) When referencing information resources, do not copy any phrases verbatim. Your synthesis of facts and finding should be in your own original written voice.

ACCOMMODATIONS: If you have a documented learning disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Office of Disability Services (SUB I, Rm. 4205; 993-2474; <http://ods.gmu.edu>) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs as soon as possible.

BLACKBOARD & EMAIL: The Blackboard site for BIOL 140 contains lecture handouts, links to online resources, and general information pertaining to the course. Students must use their MasonLive email account to receive important University information, including messages related to this class.

LECTURE PREPARATION & FORMAT: Arrive at lecture having read the assigned chapters for the week, take careful notes, and, if Homework Projects are being discussed that week, come prepared to speak briefly about your experience if called upon. I encourage questions and an open dialogue during class. If you arrive late, please enter quietly and sit at the back of the class. As a courtesy to everyone, silence cell phones.

LECTURE PARTICIPATION: Being engaged in lecture is the best way to earn a good grade in the class. Learn by taking thorough notes by hand, thinking, discussing, working together to solve problems, taking ungraded pop-quizzes, and providing written feedback to me during lecture. I formally record your feedback and participation in the form of index cards that I will periodically distribute in lecture. Your responses are *not* graded, they are simply recorded as completed. Additionally, if Homework Projects are being discussed that week and you are called upon to share your experience, you must be present to receive credit for participation for that day.

LECTURE EXAMS: The exams are given during lecture. The lecture exams are non-cumulative and cover only the material of the course segment preceding that exam. Makeup exams will only be given in the case of extreme personal emergency. It is the student's responsibility to provide relevant documentation. Graded exams will be handed back during lecture period within one week.

HOMEWORK PROJECTS: Five homework projects will be completed by students individually over the course of the semester and turned in at specific due dates. After they are turned in, a small, rotating group of students will be selected to briefly share their findings at the beginning of class as the basis for class discussion. The timing of these *informal* presentations is noted on the schedule. The goal of the take-home assignments is to direct more in-depth examination of topics we cover in lecture. Projects will take anywhere from 1 to 10 hours to complete; please plan accordingly.

1. Plants in the news. Find a recent news article from any online or print publication that has science/society and plants (or plant products) as its main topic. Provide a copy of the article and in 250 words or less, summarize the article and determine whether its topic corresponds to economic botany, ethnobotany or another field of botany.
2. Plants in everyday life. During one day, record a log of everything you eat and drink. Quantities are not important. Read ingredient lists if you can, or look critically at what you are consuming to break down all the plant products that might be directly involved. Turn in an itemized list (see Blackboard for MS Excel template) of the plant ingredients, scientific name of the plant, where was this crop domesticated or is native to geographically, and the plant organ from which the ingredient is derived (roots, stem, seed, etc). Turn in this list with a 250 word reflection on its analysis. For example, what was your most botanically diverse meal? Your most exotic plant species? The most frequent plant organ consumed? Any surprises?
3. Get to know a GMO. From the provided list (see Blackboard), choose a genetically modified plant species to research using the suggested resources and create a 500 word analysis of its development. What is this species' scientific name? Where and when was it originally domesticated? Who cultivates this plants and for what reason? What is the characteristic of its genetic modification from either its wild progenitor or previously cultivated forms? Finding reputable sources of information about modern GMO plants can be difficult; a guide to print and online resources that will assist your research is available on Blackboard. Two citations to reputable secondary resources are expected as is one citation to a primary resource (a scientific paper).
4. Science and pseudoscience on sale near you. Go to the grocery or drug store and wander down either tea or nutritional supplements aisle. Choose a preparation for sale that is 1) predominantly a plant product and 2) makes claims about its health benefits. Record its commercial name, manufacturer, its precise health claims, and its ingredient list. Using the report template available on Blackboard, complete a 500 word analysis of the identity of the "active" plant ingredients and a critical examination of the veracity of its claims. Be sure to use the guidelines provided by "A Rough Guide to Spotting Bad Science" (on Blackboard) while wading through claims! Finding reputable sources of scientific information about

“nutraceutical” plant preparations can be difficult; a guide to print and online resources that will assist your research is available on Blackboard. Two citations to reputable secondary resources are expected as is one citation to a primary resource (a scientific paper).

5. Participation in botanical citizen-science for climate change research during Earth Week. Sign up for one of the Mason tree species listed on Blackboard and find the location of one of these trees on the GIS Fairfax Campus Tree Walk Map (link to be determined). Download and complete a single phenology report form from Project Budburst (<http://budburst.org/>) and upload the data to this site. Turn in the physical report along with a 250 word description of your data in comparison the nation-wide data reported for the dates of phenological events of your species.

EXTRA CREDIT: Not available for this course.

FINAL EXAM: This will be a comprehensive, cumulative written exam that tests your attainment of the course objectives.

IMPORTANT DATES:

Exam dates: Feb 15, Mar 29, May 6

Homework Project due dates: Jan 25, Feb 8, Mar 15, Apr 12, May 3

Last day to drop: TBD

Spring Break: Mar 7-14

Last day of classes: May 6

Final Exam: TBD

CLASSMATE CONTACTS: _____ & _____

Plants and People (BIOL 140) Schedule as of 4/22/2015

Week of:	Topics, assignments	Homework Project Due
18-Jan	Chapter 1. Plants in our lives	
25-Jan	Chapter 2 and 3. The plant cell and body	Plants in the news
1-Feb	Chapter 5 and 6. Flowering plant lifecycle: flower, fruit and seeds	
8-Feb	Chapter 10 and 11. Human nutrition and the origin of agriculture	Plants in everyday life
15-Feb	Exam 1. Chapter 12. The Grasses	
22-Feb	Chapter 13 and 14. The Legumes and Starchy Staples	
1-Mar	Chapter 15 Feeding a Hungry World	
8-Mar	No classes (Spring Break)	
15-Mar	Chapter 15 Feeding a Hungry World	Get to know a GMO
22-Mar	Chapter 16 Stimulating Beverages	
29-Mar	Exam 2. Chapter 17 Herbs and Spices	
5-Apr	Chapter 19. Medicinal Plants	
12-Apr	Chapter 20. Psychoactive Plants	Science and pseudoscience

19-Apr	Chapter 21. Poisonous and Allergy Plants	
26-Apr	Chapter 18. Wood and Chapter 26 Plant Ecology	
3-May	Chapter 26 Plant Ecology. Exam 3	Project BudBurst
	Final Cumulative Exam: TBD	

* = see syllabus for precise groups and families to be covered
