

Application for a New Course v10.5

Course ID <i>Subject and Number</i>	BIOL 309
Date APPROVED	
Date DENIED	

I. Systems and Catalog Information Complete each item.

1	Course Developer	Joshua M. Brokaw
2	Course Teacher	Joshua M. Brokaw
3	Course Title	Medicinal Botany
4	Course Abbreviation (if title is over 30 characters)	
5	College	College of Arts & Sciences
6	Department	Department of Biology
7	Number of Credit Hours	3
8	Is the course Fixed Credit or Variable Credit?	Fixed
9	Is the course repeatable?	No
10	Maximum number of times course may be repeated	n/a
11	Maximum number of hours credit	3
12	Explanation for variable credit	n/a
13a	Course contact hours - LEC	3
13b	Course contact hours - Lab	0

	course be retroactively applied to the degree plan it supports? Yes/no and explain	
28	Has this course been offered as a Special Topics course? Yes/No <i>If "Yes," specify the Course ID and enrollment for each term it was taught.</i> <i>(Note: New courses are NOT required to be taught as Special Topics courses prior to being approved. However, courses may be taught once as Special Topics before it is proposed. See the Course Descriptions section of the Catalog for details.)</i>	Summer 2013: 1330_BIOL44001, 23 students Summer 2015: 1530_BIOL44001, 20 students
29	List any courses in which content overlaps the proposed course. (Course ID and Name) <i>Attach statement from instructor/dept chair of existing course justifying the new offering in Section IV-D.</i>	None

II. Curriculum

1	Degree Plan Explanation of how this course affects degree requirements.	It fulfills requirements for advanced biology credits required by the Biology BS.
2	Justification State the justification for adding this course to the current curriculum. Represent the need.	This course is the only summer biology course open to students that have not taken BIOL 221 or BIOL 222. It is also the only biology course offered at the Abilene campus during Summer II. It has had high demand for both previous offerings and strong student evaluations. This course provides students opportunities to apply scientific principles and statistical methods to the review of real medical research.

III. Course Design

1. Audience and Course Goal

1	Describe the intended audience, including prerequisite skills.	This course is intended for science majors interested in health professions.
2	State the overarching course goal(s) in performance terms.	Students must learn to think critically, to interpret statistical analyses, and acknowledge sources of uncertainty in scientific investigations. This course is an opportunity for students to apply scientific principles to the review of original biomedical research.

2. Competencies and Measurements

	Competency	Measurement
1	Students will demonstrate knowledge and understanding of the philosophy and application of medical science.	Graded presentation of literature review and weekly exams.
2	Students will demonstrate knowledge and understanding of the relationship between Western, alternative, and complementary medicine.	Weekly exams.
3	Students will demonstrate knowledge and understanding of basic plant chemistry.	Weekly exams.
4	Students will demonstrate knowledge and understanding of dangerous, therapeutic, psychoactive and edible wild plants.	Weekly exams.
5		

3. Text and Resources

1. Give the full publication information of the textbook/s and other required resources and outside readings.

Because each offering of this course covers original research in a rapidly changing field of science, text resources primarily come from the original literature and will be subject to change from year to year.

Journal articles are chosen by students and approved by the instructor. Students will be trained to search for additional references using resources available at the ACU Library

2. For **combined undergraduate/graduate** courses, make two lists:
 - a. full publication information; label **Undergraduate**.
 - b. full publication information; label **Graduate**. Indicate number of pages required.

IV. Supporting Documentation

Supporting documents must accompany proposal prior to preliminary approval by chair and dean.

	1	Library — Submit new course application and syllabus to the Dean of the Library. Consult with the director and establish a deadline for completion of the library report. Attach the signed copy of the Library report.
	2	Instructional Design — The application and syllabus must be reviewed by the Adams Center. Attach a copy of the Adams Center Review Letter.
	3	Content Overlap — Include one document for each course you listed in Section I-I. Attach statement from instructor/dept chair of existing course justifying the new offering.
	4	Departmental Resources — List the resources that support the course and are available only through the department, if applicable. Attach the list of the holdings and the location/s.
	5	Resources — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). Attach a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
	6	Expenses — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). Attach a complete list of all items, the estimated cost of each and the source of the funds.

	7	Justification — Attach all documents referred to in Section II-2
	8	Syllabus — Attach the syllabus for the course based upon the anticipated first-semester offering.
	9	Provide documentation for all additional attachments here

V. Preliminary Approvals

All supporting documentation has been assembled and attached to this application. I believe this course is ready to be presented to appropriate councils. We have a plan to fund this new course.

Course Number and Name Medicinal Botany BIOL 309

Primary Department

Thomas E. Zell

Department Chair
Dean of the College

Myra J. Zell
Date Dean

11 March 2016
Date

4/4/16
Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair
Dean of the College

Date

Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair
Dean of the College

Date

Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair
Dean of the College

Date

Date

VI. Actions *Place all actions on one page.*

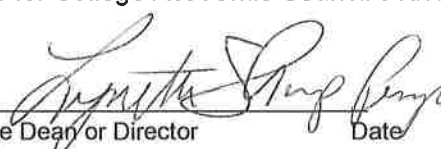
Course ID: BIOL 309

Course Title: Medical Botany

1. College Academic Council: (for all courses)

Note: Insert additional lines for College Academic Council action for each college involved in cross-listed courses.

Approved X Denied _____


College Dean or Director

4-1-16
Date

Approved ☒ Denied ☐

College Dean or Director

6/14/16
Date

2. Graduate Council: (for graduate level courses)

Approved ☐ Denied ☐

Dean of Graduate School

Date

3. Teacher Education Council: (when applicable)

Approved ☐ Denied ☐

TEC Chair

Date

4. University General Education Council: (when applicable)

Approved ☐ Denied ☐

Provost's designee

Date

5. University Undergraduate Academic Council: (*undergraduate level courses*)

Approved ☐ Denied ☐

Vice Provost

Date

6. Academic Provost: (for all courses)

Approved ☐ Denied ☐

Provost

Date

7. President of the University: (for all courses)

Approved ☐ Denied ☐

President

Date

Attach notes, comments, or conditions from appropriate councils:

Course Syllabus for Medicinal Botany

BIOL 309.01 Summer II 2017

MTWR 8:00-11:55 am

Foster Science Building Room 458

Mission Statements:

ACU: The mission of Abilene Christian University is to educate students for Christian service and leadership throughout the world.

College of Arts and Sciences: The College of Arts and Sciences engages students with humanity's greatest ideas to create understanding, apply insights, and serve the world as Christian thinkers and problem solvers.

Biology Department: The Department of Biology educates students for Christian service and leadership by preparing them to become biological scientists, pre-college teachers, and health care professionals.

Instructor: Dr. Joshua Brokaw, Associate Professor, Department of Biology

Office: Foster Science Building Room 479D

Office Hours: 1-3 pm (MTWR) or appointment*

Phone: 325-674-2168

E-mail: josh.brokaw@acu.edu

*E-mails are welcome at any time and can be used to schedule appointments outside of my scheduled office hours.

Course Description:

BIOL 309.01 Medicinal Botany (3 credit hours). A conceptual investigation of botanical medicines - including historical, theoretical, ethical, and practical aspects with special emphasis on the investigation of botanicals in complementary and alternative medicines from a scientific perspective.

Textbook: Journal articles are chosen by students and approved by the instructor. Students will be trained to search for additional references using resources available at the ACU Library; but see: *Medical Botany: Plants Affecting Human Health*, 2nd edition, by Walter Lewis (2003).

Prerequisites: BIOL 112/114 and BIOL 113/115.

Purpose and Intended Audience: This course provides an introduction to biological principles in botanical medicines, including historical, theoretical, ethical, and practical aspects, in order to teach science majors to make scientifically informed decisions affecting personal wellness and medically oriented careers.

Format: This course consists of lectures and independent student literature review for the first 2/3 of the term. The first day of last 1/3 of the term consists of a field trip to illustrate edible and medicinal spring-season plants native to Texas. During the last 1/3 of the term, students will present the results of literature reviews highlighting research from the previous 5 years. The course will end with a laboratory experiment illustrating the process of scientific investigation involving potential medicines.

Anticipated Outcomes and Competency Measures: This course provides the opportunity to learn basic principles of medical science by comparing the roles of botanical chemicals in mainstream Western medicine and Eastern and alternative medical traditions. Course competencies include demonstrated knowledge and understanding of 1) the basic **philosophy and application of medical science**; 2) **relationship between Western, alternative, and complementary medicine (CAM)** traditions; 3) **basic plant chemistry**; and 4) **dangerous, 5) therapeutic, 6) psychoactive and 7) edible wild plants**. Competency in this biological knowledge will be assessed by your performance on quizzes, tests, and an independent study presentation as outlined below.

Grade Assessment:

Grades	Weight
Quizzes and Participation	(20%)
3 Tests	(60%)
Presentation	(20%)
Total	(100%)

Grade Scale:

A:	$\geq 89.5\%$
B:	79.5 – 89.4%
C:	69.5 – 79.4%
D:	59.5 – 69.4 %
F:	less

Attendance: Attendance is vital for success in this class. It is only 12 days long, so this statement should be self-explanatory. Summer travel cannot be used as an excuse for absence. Students who miss any classes must still perform using the same standards for quizzes and tests as any others students. Thus, absence imposes a substantial risk to performance in a class in which it is difficult to catch up from missed opportunities.

All quizzes, tests, and exams should be taken when scheduled. If an acceptable excuse for missing a quiz or test is given, you may take it within two days upon your return. **Students must notify the professor prior to the next class that they are requesting a “make-up.”**

According to university policy, if a student misses a final test or examination with permission, the teacher will record an "I" (incomplete) for the course grade. The final examination may be given at a later date (within the first six weeks of the following semester), with permission from the college dean.

7	Wed	Quiz 5
8	Thu	Test 2
9	Mon	Quiz 6, Field Trip
10	Tue	Quiz 7
11	Wed	Quiz 8
12	Thu	PostLearning, Test 3, Lab

Participation grades require participation for 100% credit, or 0% credit will be assigned.

Grading Schedule:

Class	Day	Event
1	Mon	First Day, PreLearning
2	Tue	Quiz 1
3	Wed	Quiz 2
4	Thu	Test 1
5	Mon	Quiz 3
6	Tue	Quiz 4

Participation Grades: All special participation assignments are equivalent in value to quizzes and will be combined in the same component as quizzes in calculation of the course grade. For example, skipping the **field trip** or **final lab** participation would be equivalent to receiving a 0% on a quiz. There are two categories of participation grades. 1) A **pre-learning assessment** and a **post-learning assessment** will be used to assess changes in our attitudes over the course of this class. These assignments involve **completing surveys outside of class** by appropriated **DEADLINES**. Because there is substantial room for subjectivity in our attitudes towards complementary and alternative medicines, it is important for us to track the development of these attitudes as they are molded by our experiences in order to be aware of our own personal limitations. 2) Because hands on experiences are an important part of scientific education, we will have one **field trip** on the final Monday and one **laboratory experiment** on the final day of class. Students must take an active role in the experiences and data collection to receive credit for participation.

Presentation Project: Because this is a complicated field of inquiry, students in this class have the opportunity/obligation to investigate the original research in medicinal botany. Students must present information from at least two peer-reviewed publications that are no more than 5 years old (exceptions to the "5 year rule" will be handled case by case). ACU Library's OneSearch (located at <http://www.acu.edu/library.html>) is a recommended site for finding appropriate articles. However, student may need to use the Interlibrary Loan system at the ACU library to acquire the full text of the articles; **do not put this off!** Unreviewed internet articles and unreviewed books will not be accepted as sources for presentations. Students must cite their sources. Based on these sources, students must present knowledge of one specific organism with medicinal value. In most cases only one student can present on each species (exceptions must be handled case by case). Presentation topics will be approved on a first-come-first-serve basis. **The presentation is due as a 15-20 minute PowerPoint presentation file by 12am on the final Monday of the course. Students will make their presentations during the last week of class. Because presentations will be used for teaching other students, each presentation must contain a review section and include at least 5 topics of review information that could be used as test questions. These review question topics must be obtained from peer-reviewed journal articles and are required in addition to the findings/results of the study. At a minimum, results must include the statistical significance and effect size (see statistics lecture) of the treatments in the study.** The instructor will make edited presentations available to all other students to be studied by 5pm the afternoon of the presentation for the 3rd test in the class.

The grade for this presentation will be determined by the average grade (A=95, B=85, C=75, D=65, or F=0) of the three component of the following rubric.

	A	B	C	D	F
Clarity and Completion	Presentation is well-written, void of mistakes, and makes purpose, relevance, and methods clear. Product contains and appropriately distinguishes introduction, methods, results, and discussion. Sources are appropriately cited.	Presentation is mostly well written, leaving only minimal lack of clarity. Product contains and usually distinguishes introduction, methods, results, and discussion appropriately. Sources are cited.	Presentation is poorly written, leaving questions about the purpose, relevance, and methods of the research. Product lacks or fails to appropriately distinguish one or two of the following: introduction, methods, results, and discussion. Most sources are cited.	Poor writing quality and clarity make it difficult to judge the product at all. Product lacks or fails to appropriately distinguish three or all of the following: introduction, methods, results, and discussion. Most/all sources are not appropriately cited.	No product/plagiarism
Results and Analysis	Statistical analyses are thoroughly described. Significance level is correctly reported and interpreted, and effect size is reported.	Statistical analyses are reported. Significance level is correctly reported and interpreted, and effect size is reported.	Statistical analyses are reported. Significance level is correctly reported but <u>not interpreted</u> , and effect size is reported.	Statistical analyses are reported. Significance reported but <u>not interpreted</u> , and effect size is <u>not</u> reported.	No product/plagiarism
Review and Discussion	Review of preexisting knowledge is thorough and demonstrates context and relevance of the research. Discussion appropriately interprets the results while fully considering caveats without making claims not supported by the data.	Review of preexisting knowledge is satisfactory to demonstrate context and relevance of the research. Discussion interprets the results but does not fully consider caveats or makes some claims not clearly supported by the data.	There is some review of preexisting knowledge but does not demonstrate context and relevance of the research. Discussion merely restates the results and does not consider caveats or makes claims not supported by the data.	Review and discussion are merely a summary of unsupported claims.	No product/plagiarism

Quizzes: Most classes will begin with a quiz or test. Quizzes contain 10 multiple-choice questions. These quizzes are intended to help you understand the format of testing in this class. As noted in the schedule, a total of 8 quizzes will be given **over material covered following the previous quiz or test**. The **lowest quiz score will be dropped** from the average (**none of the participation grades will be dropped, and zeros on quizzes due to unexcused absences will not be dropped**). All quizzes require use of a long scantron form. **You will need to bring scantron answer sheets (long forms only) and a #2 pencil with you for quizzes.** FYI: I will return graded scantrons, and the back sides of scantrons can be used for separate quizzes or tests.

Tests: Tests covering the 3 major sections of the course **will be given at the beginning of the day on days noted in the schedule**. Tests last 50 minutes, followed by a 10 minute break and resumption of class. **All tests and exams are composed of multiple-choice questions following the same format and based on the same material as quizzes. You will need to bring scantron answer sheets (long forms only) and a #2 pencil with you for tests and exams.**

Order of Topics: * Any changes to planned topics will be communicated orally and/or in writing to students.

Class Schedule:

Class	Day	Topics
1	Mon	Worldviews: Religion and Science; History of Medicine
2	Tue	Medical Statistics; Alternative Medicine
3	Wed	Plant Chemistry: Functions and Adaptations; Plant Chemistry and People
4	Thu	After Test 1: Harmful plants
5	Mon	Introduction to Medicinal Plants
6	Tue	Remedial Plants
7	Wed	Psychoactive Plants
8	Thu	After Test 2: Psychoactive Plants Continued
	Mon	Edible and Medicinal Wild Plants of Texas (Field Trip)
9	Tue	Presentations
10	Wed	Presentations
11	Thu	PostLearning, Test 3, Black Worm Physiology Lab

Class Time: Our (11) four hour sessions will usually be divided into 3 segments of ≈ 70 minutes with a ten-minute break in between. With your help we will watch the clock and keep on schedule. However, we will make space when necessary for interactive dialogue and open-ended questions.

Learning Disabilities: If you have a documented disability and wish to discuss academic accommodations, you must contact the *ACU Student Disability Services Office* (part of *Alpha Academic Service*) at (325) 674-2667 to make an appointment with the Director of Disability Services. In order to receive accommodations, you must be registered with them for each class in which you need accommodations. They will make necessary arrangements in cooperation with instructors.

Behavior/Dress Code: Any behavior or dress that distracts from learning or endangers other students will receive one warning. If there is a second infringement, you will be asked to leave class.

Academic Integrity: Academic integrity is defined as academic work completed as assigned for each class. Violations of academic integrity and other forms of cheating involve the intention to deceive, mislead, or misrepresent. Academic misconduct includes, but is not limited to, the following: 1) Cheating on tests and quizzes (looking at another student's test will always be interpreted as cheating), 2) Failure to give credit to sources used in a work in an attempt to present the work as one's own, 3) Submission of papers or projects obtained from another source (e.g., research service or club paper file) as one's own, and 4) Falsifying information orally or in writing. Academic misconduct may result in, but is not limited to, a zero on the assignment and/or an F in the course. Additionally, the department chair, Dean of the College of Arts and Sciences, and the Dean of Student Life will be notified. See the full university policy, including how to appeal a decision, by following this link: <http://www.acu.edu/campusoffices/studentlife/judicialDocuments/AcademicIntegrityPolicy.pdf>.

Prohibiting, Preventing and Responding to Harassment: At ACU, we strive to comply with all applicable legal requirements prohibiting, preventing, and responding to harassment against any member of the ACU community (e.g., Title VI, VII, and IX). Moreover, as a Christian community, ACU has committed itself, unequivocally, to ensuring a working and learning environment in which the dignity of every individual is respected. The ACU Anti-Harassment Policy (<http://www.acu.edu/legacy/campusoffices/hr/title-ix/anti-harassment-policy.html>) outlines specific definitions and procedures related discriminatory and sexual harassment, sexual misconduct, assault, stalking, and relationship violence. If you experience harassment in any of these forms, we encourage you to report it so that we can help maintain a work and academic environment free of unlawful harassment.

Faith and Questionable Materials: As with all worthy areas of academic inquiry, material in this course will likely challenge your understanding of the world (i.e. challenge worldviews and system of faith). It is my objective as a mentor and a brother in Christ to provide the space for your questions and your personal development during this process because "Without any doubt, the mystery of our religion is great" (I Timothy 3:16a).

Departmental Resources Used by Medicinal Botany (BIOL 309)

The ACU Herbarium: a research collection of preserved plant specimens

- Onstead Science, Room 485

The ACU Ecology Lab and equipment therein

- Onstead Science, Room 481

- 6 Compound microscopes

- Misc. glassware

- Refrigerators

Friday, March 11, 2016

Abilene Christian University

Re: BIOL 309 Application

Dr. Brokaw,

The Adams Center for Teaching and Learning has completed the review BIOL 309: Medicinal Botany. The syllabus was reviewed based on the ACU Syllabus Guidelines. The syllabus proposed meets or exceeds most of the expectations described in these guidelines.

Please consider the following before submitting the syllabus to the Academic Council.

- You might consider using Canvas to administer exams and quizzes, instead of Scantrons, in order to provide prompt and complete feedback to students about answers they missed.

There is no need to return the syllabus to the Adams Center for further review. Of course, if you would like to discuss this suggestion or any other aspect of your syllabus or instructional strategies, please contact me and we will schedule a time as soon as possible. We are here to serve you as you help prepare students for Christian service and leadership throughout the world.

Grace and Peace,

David Christianson
Instructional Designer
Adams Center for Teaching and Learning
Abilene Christian University

ACU Syllabus Checklist

Revised on July 15, 2014 based on ACU New Course Application v10.5.

Course Title and Number

BIOL 309 Medicinal Bot:

Reviewer

David Christianson

Developer

Josh Brokaw

About the course

- ☒ Course number and title
- ☒ Credit hours
- ☒ Semester and year
- ☒ Meeting time and place
- ☒ Prerequisites/co-requisites

About the instructor(s)

- ☒ Name and title or rank
- ☒ Office location
- ☒ Contact information
- ☒ Office hours/contact expectations

Mission statements

- ☒ ACU mission statement
- ☒ College mission statement
- ☒ Department mission statement
- ☐ Personal mission statement (optional)

Unique Christian Perspective

- ☒ Description of how learning and Christian faith are integrated in the course

Course Content

- ☒ Catalog description

- ☒ Intended audience
- ☒ Outline of topics

Teaching/Learning Methods and Format of Class Sessions

- ☒ Description of the types of activities students should expect in the course

Materials

- ☒ Required and optional materials, including textbooks, etc.

Learning Objectives/Competencies

- ☒ Specific competencies stated in measurable terms
- ☒ Assignments or instruments that will be used to assess the competencies.

Assessment/Grading Criteria

- ☒ Complete and accurate details of factors and elements that will comprise the final grade
- ☒ Weight or point value of all graded elements
- ☒ Grading scale with clear expectations for grades
- ☐ Extra credit opportunities (optional)

University Policies

- ☒ Special needs policy -ADA
- ☒ Academic integrity policy (recommended)
- ☒ Title IX policy (recommended)

Course Policies

Expectations and consequences regarding:

- ☒ Participation
- ☒ Attendance and tardiness
- ☐ Course specific academic integrity policy (optional)

Calendar

(Note: Calendar is not required for Course Application, but it must be included in all syllabi distributed to students.)

- ☒ Exam dates
- ☒ Assignments
- ☒ Due dates and other deadlines (and late assignment/exam policy)
- ☒ Schedule of readings and topics
- ☒ Statement to reserve the right to modify the calendar as necessary

Any comments?

You might consider using Canvas to administer exams and quizzes, instead of Scantrons, in order to provide prompt and complete feedback to students about answers they missed.

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ABILENE CHRISTIAN UNIVERSITY

LIBRARY

M E M O R A N D U M

DATE: April 1, 2016
TO: Dr. Josh Brokaw
FROM: Mark McCallon, Associate Dean for Library Services
RE: Course Application for BIOL 309 – Medicinal Botany

After reviewing the course application and syllabus, the library should be able to support the proposed course, depending on the projects chosen by students. If you require additional library resources in support of the course, please contact Jasmine Hoover (jrh15c@acu.edu) , Librarian Liaison for the Department of Biology. Thank you for letting the library review the course application.