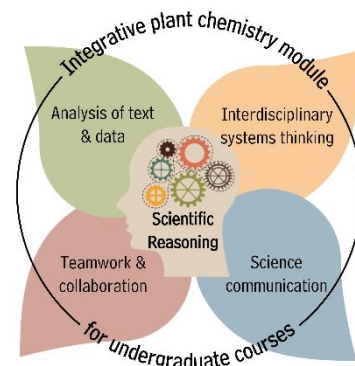


# BIOS 368 SYLLABUS

## PLANTS IN HUMAN MEDICINE: BIOLOGICAL, SOCIAL, & ETHICAL DIMENSIONS

<b>Instructor:</b>	Dr. Sabrina E. Russo, <a href="mailto:srusso2@unl.edu">srusso2@unl.edu</a>
<b>Course website:</b>	Canvas
<b>Remote Meetings:</b>	MWF 1:30-2:20pm, Zoom
<b>In-person Meetings:</b>	MWF 1:30-2:20pm, 401 Manter Hall (or outside TBD)
<b>Remote Help Hours:</b>	Tu 12:30-1:45pm (or appointment by email), Zoom
<b>Required texts:</b>	None – Course reserves and PDFs on Canvas
<b>Required software:</b>	Zoom, <a href="#">Download the UNL Zoom software</a> . One dry erase board marker (darker color)



### Cornhusker Commitment

Chancellor Green's email of July 23, 2020, detailed the many adjustments that we all need to make in order to maintain a safe learning community for everyone. Please read the Chancellor's email and follow the links to sources of information regarding the COVID-19 pandemic and how UNL is responding. We know that much of our success lies in our common dedication to safety measures and supporting each other. Chancellor Green asks that all students sign the [Cornhusker Commitment](#). Dr. Russo has done this, and ask that you do the same.

### Course delivery

Classes will start remotely and asynchronously on August 17, 2020, with in-person and synchronous online instruction beginning August 24, 2020. As a result of COVID-19, the University of Nebraska-Lincoln (UNL) has placed physical distancing restrictions and at least 30% reduction in student/instructor density in all UNL spaces, which restricts the number of students that can be present in the classroom at once for in-person instruction. To meet these requirements, this course will be delivered in the following three ways. (1) *Video-online (VO)*: Some course material will be pre-recorded and available online as a video via Canvas. I will do my best to caption all videos. Students will be asked to view the material outside of class meeting times. (2) *Zoom-online (ZO)*: Some course activities will be conducted live during the normal class meeting times remotely via Zoom video conferencing software. Zoom online class meetings will involve all students. (3) *In-person (IP)*: Some course activities will be conducted in-person during the normal class meeting times in Manter 401, with no more than six students meeting at a time. Students will be assigned to a group to attend in-person meetings, and a meeting schedule for all groups will be distributed on Canvas. Some in-person class meetings may be held outside, weather permitting.

There will be a 100% remote version of the course available for students who cannot attend in-person meetings; please email Dr. Russo as soon as possible to discuss this option. Students may transition at any time and for any reason to 100% remote participation. In-person class meetings may be recorded or made available live via Zoom to accommodate students who are participating in the course 100% remotely. Note that because there are uncertainties with respect to the future severity of the COVID-19 pandemic, all course delivery may need to become 100% online, or may change in ways that cannot be predicted at the time that this syllabus is being written. Students are encouraged to keep up-to-date with the latest [UNL policies on COVID-19](#) and view [UNL's information and resources for the fall 2020 semester](#).

*If you think you will have difficulty participating in this course given this delivery mode, please email Dr. Russo.*

### Required Face Coverings

As of July 17, 2020, and until further notice, all UNL faculty, staff, students, and visitors (including contractors, service providers, and others) are required to use a facial covering at all times when indoors except under specific conditions outlined in the [UNL COVID 19 face covering policy](#). This statement is meant to clarify classroom policies for face coverings.

To protect the health and well-being of the University and wider community, UNL has implemented a policy requiring all people, including students, faculty, and staff, to wear a face covering that covers the mouth and nose while on campus. The classroom is a community, and as a community, we seek to maintain the health and safety of all members by wearing face coverings when in the classroom. Failure to comply with this policy is interpreted as a disruption of the classroom and may be a violation of UNL's Student Code of Conduct (see below). Individuals who have health or medical reasons for not wearing face coverings should work with the Office of Services for Students with Disabilities (for students) or the Office of Faculty/Staff Disability Services (for faculty and staff) to establish accommodations to address the health concern. Students who prefer not to wear a face covering should work with their advisor to arrange a fully online course schedule that does not require their presence on campus. *UNL will provide you with two cloth face coverings* that can be obtained at distribution stations opening on-campus on August 10 (details to be provided in a general UNL email). Note that masks with ventilation valves are not allowed.

Students in the classroom:

- If a student is not properly wearing a face covering, the instructor will remind the student of the policy and ask them to comply with it.
- If the student will not comply with the face covering policy, the instructor will ask the student to leave the classroom, and the student may only return when they are properly wearing an accepted face covering.
- If the student refuses to properly wear a face covering or leave the classroom, the instructor will dismiss the class and will report the student to Student Conduct & Community Standards for misconduct, where the student will be subject to disciplinary action.

Instructors in the classroom:

- If an instructor is not properly wearing a face covering, students will remind the instructor of the policy and ask them to comply with it.
- If an instructor will not properly wear a face covering, students may leave the classroom and should report the misconduct to the SBS Director (Mike Herman, [mherman5@unl.edu](mailto:mherman5@unl.edu)) or via the TIPS system for disciplinary action through faculty governance processes.

### *Intellectual Property in the Class*

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I invite all of you to join me in actively creating and contributing to a positive, productive, and respectful classroom culture. Each student contributes to an environment that shapes the learning process. Any work and/or communication that you are privy to as a member of this course should be treated as the intellectual property of the speaker/creator, and is not to be shared outside the context of this course. Students may not make or distribute screen captures, audio/video recordings of, or livestream, any class-related activity, including lectures and presentations, without express prior written consent from me or an approved accommodation from Services for Students with Disabilities. If you have (or think you may have) a disability such that you need to record or tape class-related activities, you should contact Services for Students with Disabilities. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. All classes are closed to the Press/Media. Note that these intellectual property rules apply to any distribution of course material, including uploading or posting to sites, such as Chegg or Quizlet. If you have questions about intellectual property, please email Dr. Russo. Failure to follow these rules may subject you to discipline under the Student Code of Conduct.

### *Etiquette, Security, and Privacy of Remote (online) Meetings in Zoom*

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Some meetings for this course will be conducted live online via the Zoom platform, which transmits both audio and video information over the internet. The security and privacy of Zoom cannot be guaranteed. It is also your responsibility to ensure that the environment where you participate in remote/online learning sessions (either class meetings or meetings with Dr. Russo or your classmates) is an appropriate place for such meetings. [Zoom etiquette](#) includes presenting yourself professionally and ensuring that the environment does not have inappropriate or distracting noises or visuals transmitted online and that others are not nearby who might hear references to academic information, including information that is protected by the Family Educational Rights and Privacy Act.

## Goals of this course:

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This course focuses on the uses of plants in medicine, wellness, and nutrition, but you will also engage in **professional development** by learning **translational skills** that are essential to any career. These include the analysis of text and data, scientific writing and communication, teamwork and collaboration, interdisciplinary thinking, and quantitative reasoning.

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

- (1) **Describe** historical development of the use of plants in medicine, wellness, and nutrition
- (2) **Compare** human cultural diversity in perspectives and use of plants in medicine, wellness, and nutrition around the globe
- (3) **Describe** the biological and evolutionary origins of plant-derived medicinal compounds and **relate** their functioning in plants to how they function medicinally in humans to enhance human health and wellness
- (4) **Describe** plant-derived compounds used in traditional and alternative medicine for the treatment of human diseases, including cancer and cardiovascular, digestive, neurological disorders
- (5) **Describe and gain hands-on experience with biotechnological approaches** used in the study of plants in medicine
- (6) **Describe** the role of plants in nutrition and preventive medicine, including the promotion of digestive health, cancer prevention, and mental and emotional wellness
- (7) **Evaluate** alternative perspectives on the use of plants in medicine, nutrition, and wellness by **analyzing** the social and ethical implications
- (8) **Assemble and analyze** information to **formulate and defend** a position on controversial topics related to the use of plants in medicine, nutrition, and wellness
- (9) Use **discussion** and dialogue to communicate effectively, **work together** in teams, **reason** logically and quantitatively, **explain** complicated issues, and **interpret** wide-ranging social and ethical implications

## Prerequisites and requirements of this course:

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Prerequisites are LIFE 120 and 121, although exceptions may be requested. The material in this course assumes knowledge of general biology, ecology, and evolution, so having taken (or currently taking) BIOS 207 or BIOS 220, is also helpful, but not required. I expect that you will attend all course meetings, complete assignments, prepare for and participate in all class activities. If any student engages in disruptive activity that inhibits the learning of others, I will ask you to stop or leave the class.

I encourage you to work in groups by discussing course material and helping each other understand concepts. However, when you write out an answer for any assignment, **you must answer in your own words. Copying text from readings, web sites, or each other is plagiarism and will be treated as academic dishonesty.**

## Course Details

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All communications about the course will be through Canvas, from which you can download all course materials, including the schedule of readings, activities, and delivery mode (Video-online, Zoom-online, In-person). Class meetings will be divided between lectures, discussions, active learning activities, and assignments. The **Course Schedule** may change and will be updated on Canvas. All readings will be available through Canvas.

The main Canvas page has instructions for new users. Make sure that the email address associated with your Canvas account is the one that you check regularly. Check your email and Canvas accounts daily for course information and updates, and make sure that your Canvas notifications are set so that you receive course updates and announcements regularly. If you have any questions about any aspect of this course or about biology in general please come see me! You can talk to me after class, during office hours, or by appointment. If you have a simple question you can email me ([srusso2@unl.edu](mailto:srusso2@unl.edu)) with BIOS 368 in the subject line or email me through Canvas. I get lots of spam, and I might accidentally delete your message if it does not have the correct subject line.

I take an active-learning approach in this course, and provide a diversity of activities for students to engage in the learning process. Students are encouraged to take responsibility for their own learning and so are expected to actively participate in course activities, which include preparing for class meetings by doing the required readings, engaging in active learning assignments (sometimes in small groups), answering/discussing impromptu thought questions that may sometimes require small-group discussion, and participating in discussions of readings and course topics. **Students should consult with me in advance when they anticipate an absence from class to make sure the absence is excusable.**

### *Assessment of Student Learning*

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There are five categories of assessments, Exams, Lab Activity, Presentation Abstract, Presentation, Mini Scientific Manuscript, Discussion Questions, and Discussion Participation. Grades for each assignment within a category will be given on a point scale and converted to a percentage. For categories with more than one assignment, the individual assignments within each category will be averaged to determine the grade for that category. The final course grade is calculated as a weighted average based on the percentages above, and converted to a letter grade based on the grading scale on page seven. These assessments are described below and in more detail in documents on Canvas.

#### **Exam & Quiz Assessments:**

Exam	15%
Quizzes (4)	5%

#### **Plant Medicinal Chemistry Lab Assessments:**

Article Summary	5%
Abstract	15%
Presentation	10%
Draft Figures and Tables	5%
Mini Scientific Manuscript	20%

#### **Discussions:**

Discussion Questions	15%
Discussion Participation	5%

#### **Yellowdig Community Engagement:**

Yellowdig Engagement	5%
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**Turning in and Grading Assignments:** Unless otherwise indicated, all assignments should be turned in via **Canvas**. As soon as I finish grading assignments, I will post the scores on Canvas. At any time, you can find out your scores on individual assignments using Canvas. It is your responsibility to check to see that the information is correct. I use the review and comment features to send comments on your assignments via Canvas, so please check your graded assignments for feedback that can help you learn more and improve in the course. I am happy to meet you to discuss your grade at any time.

**Rules for Late Assessments:** If you know that an excusable absence will affect your ability to turn in an assignment on time, then **you must speak with me ahead of time** to make sure that your absence is excusable. Otherwise, your assignment will be considered late, and there are **penalties for late assignments** in this course. For assignments on Canvas, there will be no credit given for late assignments. For other assignments, if an assignment is turned in late by three hours or less, then 1/3 of a letter grade will be deducted from the final grade. After that, one letter grade will be deducted for every day (24-hour period) that the paper is late. In other words, if you turn in your paper 25 hours late, then if the paper grade was an A, then you will receive a C.

**Exam & Quiz Assessments:** There will be one take-home **Exam** that will cover material that has been covered prior to the first day of Exam Week in any aspect of the class (for example, lecture, reading, lab, or discussion material). The Exam will be graded on a 100-point scale will consist primarily of short- and long-answer essay questions or conceptual model questions similar to the kinds assessments in the **Discussion Questions** and other class activities. **If you will be unable to complete an exam in the specified time period, for example, due to**

**illness, please contact me as soon as possible.** Failure to turn in a take-home exam by the specified deadline without an extension from me will result in a grade of zero points. Four **Quizzes** will be administered as multiple choice and use the Immediate Feedback Assessment Technique, which will be explained in class. There are no make-up quizzes, and missed quizzes will receive a grade of zero; however, the lowest quiz grade will be dropped.

**Plant Medicinal Chemistry Lab Assessments:** The overarching learning goal of these Assessments is to use scientific inquiry to allow students to develop skills in critical thinking, analysis, and presentation of information. The series of Assessments mimics the scientific process, and each assignment progressively builds upon the previous. In the Lab Activity, students will work in groups of 2-4 (depending on class size) and conduct chemical extractions of plants and examine the biochemical signatures of these extracts using metabolomics (see **Overview – Plant Medicinal Chemistry Lab**). Using the data derived from the lab, as well as primary research literature on phytochemicals, students will write a scientific abstract, present their results in class, and write a final paper. Participation in the lab activity is required.

**Article Summary:** Working individually, students will write an **Article Summary** of the scientific article assigned to help them prepare for the lab activity. See **Article Summary-Instructions** for details.

**Abstract:** Working individually, students will write a scientific abstract based on the findings from the Plant Medicinal Chemistry Lab. You will turn in an ungraded, but required, **Draft Abstract** and have the opportunity to revise your Abstract based on feedback from me and classmates during class, and then turn in a graded final **Abstract** to Canvas. Turning in the Draft Abstract is required for full credit on the final Abstract grade. See **Abstract Outline** and **Lab Assessments-Instructions** for details.

**Presentation:** Working in pairs, students will present their findings to the class in the **Plant Medicinal Chemistry Symposium**. See **Lab Assessments-Instructions** and **Presentation and Scientific MS Outline** for details.

**Mini Scientific Manuscript (MSM):** Working individually, students will write a paper summarizing their findings from the Plant Medicinal Chemistry Lab. Your Mini Scientific Manuscript (MSM) will be written progressively. First, you will write an ungraded, but required, Outline of the Introduction section and bring this to class to use as a basis for beginning to write an ungraded, but required, Draft Mini Scientific Manuscript. The Draft Mini Scientific Manuscript should have at least an outline for all required sections of the paper and have draft versions of figures and tables. Last, you will turn in a graded Final version of your Mini Scientific Manuscript. Turning in the Outline and Draft MSM is required for full credit on the final MSM. See **Lab Assessments-Instructions** and **Presentation and Scientific MS Outline** for details.

**Discussion:** The development and use of plants in medicine, nutrition, and wellness has many **biological, ethical, and social implications** that will be explored in discussions. Discussions facilitate verbal exchange of different points of view on an issue in an attempt to achieve a deeper understanding. Discussions offer students the opportunity to more meaningfully engage with subject knowledge than can be achieved in readings or lectures. The purpose of the discussions is for students to learn skills for research in medicine, understand information presented by different sources, critically analyze this information, reflect and form their own conclusions from it, and be able to articulate and defend their conclusions. Interactive discussions can contribute not only to achieving course-specific learning goals, but also to achieving a range of broader outcomes that develop critical life skills, such as oral communication and argumentation, collaborative learning, confidence, and critical thinking and analysis.

Discussions will be student-led and may cover controversial topics related to plants in medicine and wellness that have wide-ranging social and ethical considerations. These considerations are not academic: every day, they affect the health and wellbeing of millions of people in developed and developing nations alike. The discussions will explore the power and promise of plants for discovery and development of novel therapies for human ailments, as well as what ethical principles should guide that discovery and development, and the importance of the multifaceted socioeconomic consequences. There are two discussion-related assessments: **Discussion Questions** and **Discussion Participation**.

**Discussion Questions:** For each paper discussion, there will be a set of **Discussion Questions** that all students must answer prior to the scheduled in-class discussion. The Discussion Questions will consist of readings and questions designed to engage students' analytical and critical thinking skills and will serve to prepare all students for active participation in the in-class discussion. Discussion Thought Questions can be downloaded as a Word document from Canvas. The Discussion Questions should help guide your thinking and understanding about the paper and will be available through Canvas. Although your answers will not be graded in detail for correctness, students not giving thoughtful answers will not receive credit. **Students will not receive credit for any answer in which text is directly copied from the paper as part or all of an answer to any Discussion Questions.** The goal is for you to demonstrate your understanding of the paper by providing answers to questions in your own words, just as you must on Exams.

**Discussion Participation:** All students will be expected to actively engage in the discussions. Discussion Participation will be assessed based on the level of preparation of the student and the productiveness of the ensuing discussion, including knowledge of the assigned reading, integration of the assigned reading with lecture material covered so far, and clarity, creativity, and logic of the arguments. See **Discussion Instructions** and **Leading the Discussion of a Scientific Journal Article** for details.

**(10) Yellowdig Community Engagement:** You can earn points by engaging in discussions on the Yellowdig Community for the course. On the Yellowdig Community, you can post content and have useful conversations about course-relevant topics. As you create posts and make comments that contribute to the Community, and as other students react to or comment on your posts, you will automatically receive participation points. Yellowdig does not appear on the Course Schedule because you will engage with it all semester. See **Yellowdig Community Engagement** on Canvas for details.

**Grading Scale (% of available points):**

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A+	97.0 – 100	C	73.0 – 76.9
A	93.0 – 96.9	C-	70.0 – 72.9
A-	90.0 – 92.9	D+	67.0 – 67.9
B+	87.0 – 89.9	D	63.0 – 66.9
B	83.0 – 86.9	D-	60.0 – 62.9
B-	80.0 – 82.9	F	<59.9%
C+	77.0 – 79.9		

**Services for Students with Disabilities**

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The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with [Services for Students with Disabilities](#) (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss your accommodations so they can be implemented in a timely manner. SSD contact information: 117 Louise Pound Hall; 402-472-3787.

**Academic Support Services**

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You can schedule free appointments for individual academic coaching with First-Year Experience and Transition Program staff through MyPLAN. You can also take advantage of study stops--which provide individual and group study with learning consultants in a variety of disciplines--and free group workshops on topics such as time management, goal setting, test preparation, and reading strategies. See [success.unl.edu](http://success.unl.edu) for schedules and more information.

## *Counseling and Psychological Services*

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UNL offers a variety of options to students to aid them in dealing with stress and adversity. [Counseling and Psychological & Services](#) (CAPS) is a multidisciplinary team of psychologists and counselors that works collaboratively with Nebraska students to help them explore their feelings and thoughts and learn helpful ways to improve their mental, psychological, and emotional well-being when issues arise. CAPS can be reached by calling 402-472-7450. [Big Red Resilience & Well-Being](#) (BRRWB) provides one-on-one well-being coaching to any student who wants to enhance their well-being. Trained well-being coaches help students create and be grateful for positive experiences, practice resilience and self-compassion, and find support as they need it. BRRWB can be reached by calling 402-472-8770.

## *Diversity and Inclusion*

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All students are welcome in this course, and the [School of Biological Sciences is committed to diversity and inclusion](#). All students are expected to interact with each other and with instructors with respect so that we can foster an engaged, inclusive, and productive learning environment in which everyone has the chance to grow and succeed and in which we all participate, listen, and communicate with fairness, honesty, and respect. Students who disrupt the learning of other students in any way will be asked to stop the conduct disruptive to learning, at the discretion of the instructor. If the disruption continues, the student will be asked to leave the classroom or Zoom-room. UNL does not discriminate on the basis of race, ethnicity, color, national origin, sex (including pregnancy), religion, age, disability, sexual orientation, gender identity, genetic information, veteran status, marital status, and/or political affiliation.