

# INTRODUCTORY PLANT SCIENCE

## AGRO 1110G/ HORT 1115G

Spring 2022



### General Information:

This course is designed to offer the student a general introduction to the principles of plant growth and development as they apply to a wide range of agronomic and horticultural crops and the industries related to production, marketing, and utilization of those crops. The course is also designed to engage students in the world of plants and the science of studying them.

### Course Catalog Description:

Introductory course presenting the physical, biological, and chemical principles underlying plant growth and development in managed ecosystems. In the laboratory portion of the class, students perform experiments demonstrating the principles covered in lecture. The course uses economic plants and agriculturally relevant ecosystems to demonstrate basic principles. Appropriate for non-science majors.

### Class Meeting Times and Place:

#### Lecture:

MWF 12:30-1:20pm, Room: Knox Hall (KN), Room 339

#### Labs:

Monday: 1:30-4:00pm -W138 Skeen Hall- Harmanpreet Kaur, TA

Tuesday: 10:30 am-1:00pm -W139 Skeen Hall- Sangita Subedi, TA/  
Harmanpreet Kaur, TA

Tuesday: 1:30-4:00pm -W138 Skeen Hall- Govinda Sapkota, TA

Thursday: 1:30-4:00pm -W138 Skeen Hall- Sangita Subedi, TA

### Instructor:

Kulbhushan K. Grover

Associate Professor

Plant and Environmental Sciences Department

Office: N-358 Skeen Hall

Phone: 575-646-2352

Email: kgrover@nmsu.edu

Office hours: By appointment

### Lab instructors:

Name	Office	Email	Office hours
Govinda Sapkota	W-329 Gerald Thomas Hall (GTH)	govinda@nmsu.edu	Monday 10-11 AM
Harmanpreet Kaur	N-333 Skeen Hall	harman12@nmsu.edu	Monday 11 AM-1 PM
Sangita Subedi	N-333 Skeen Hall	subedis@nmsu.edu	Thursday 10:30 AM- 12:00 PM

### Textbook:

Parker, Rick. Plant and Soil Science: Fundamentals and Applications. Delmar Cengage Learning. New York: 5 Maxwell Drive, Clifton Park, 2010.

The textbook is NOT required but is suggested and will be a good resource material for you. You can purchase a copy at the bookstore on campus. There will also be a copy of the text on reserve at the Zuhl Library circulation desk.

### Course Web Site:

The course web site can be found at <https://learn.nmsu.edu>. You will need to enter your NMSU login name and your password. Please check the web site occasionally for important information regarding the course and grades.

### Classroom Policy:

You are encouraged to discuss any difficulties that you may have in this course at my office in Skeen Hall, N-358. If you have (or believe you have) a disability and would benefit from classroom accommodation(s), the Services for Students with Disabilities (SSD) Office is located at Corbett Center, room 208. Appropriate accommodations may then be provided to you. All medical information will be treated confidentially. Turdy Luken is the director. Their phone is 575-646-6840; and email is sas@nmsu.edu.

Regular attendance to lectures is expected. You will soon discover that much of the material discussed in class will not be found in the handouts or in the book.

### Academic misconduct and plagiarism:

Academic misconduct including plagiarism will not be tolerated in the Plant and

Environmental Sciences Department. The Department follows the policies and procedures pertaining to academic misconduct and plagiarism found in the NMSU Student Code of Conduct available online at

<http://www.nmsu.edu/~vpsa/SCOC/scoc.pdf> according to which (p.4).

According to the NMSU Student Code of Conduct (p.3), "Academic misconduct includes, but is not limited to, the following actions: ...Plagiarism, which includes, but is not necessarily limited to, submitting examinations, themes, reports, drawings...undocumented quotations...or other material as one's own work when such work has been prepared by another person or copied from another person."

**Students caught plagiarizing the work of others or cheating will receive a grade of zero (0) for that assignment. Any student caught plagiarizing a second time will receive a grade of 'F' for the entire course. The instructor will strictly enforce this policy and disciplinary action may vary depending on the circumstances of the infraction.** Please familiarize yourself with the NMSU Student Code of Conduct so there are no surprises.

### Cell phones:

Please turn your cell phone to "silent" in the classroom. During quizzes and exams, cell phones should be shut OFF (not just set to vibrate/silent). The instructor may confiscate any phone that is being used at an inappropriate time during the class period. In addition, any exam, assignment or other classroom activity that is being worked on at the time may receive a reduced grade (0).

**COVID-19 Health and Safety Protocols:** Please make sure when we meet in person for labs, you follow the COVID restriction protocols as required by the university policy. Face masks are required for indoor class meetings and recommended for outdoor meetings. Please find more information on the latest guidelines and updates on COVID-19 Health and Safety Protocols at

<https://now.nmsu.edu/plan/nmsu-covid-19-health-safety-protocols.html>

### Grading System:

**Announced Quizzes:** There will be a ten minute quiz given each Friday at the beginning of the class. Each quiz will cover the material discussed in class that week. Some quizzes will be "take home." The only excuse that will be accepted for missing a quiz will be a written one from a physician. If you must miss class on Friday, let me know early and I will arrange for you to take the quiz early. I will

drop the two lowest quizzes. In addition, there may be short in-class quizzes without any prior announcement to help you get extra credit.

**Examinations:** There will be two, one-hour examinations covering all of the material up to the date of each examination. Dates for the examinations are given below. Each exam will be worth 100 points. The **final exam** will be comprehensive and will be worth 150 points. No excuse, except that of a physician, will be acceptable for missing an exam. If you identify a conflict for the final exam, you must notify the instructor two weeks before the final exam so that we can make other arrangements. **The final exam will be held on Wednesday, May 6<sup>th</sup>, 2022 from 10:30 AM-12:30 PM in room 339 Knox Hall.**

**Labs:** To supplement the class lectures, weekly labs will be held. This is the part of the class where you get to experiment, go outside, and see the application of concepts you learn about in lecture. The activities you engage in during the labs should be very helpful and even fun. The instructor and TA's have put a lot of work into preparing them. Therefore, laboratory attendance is mandatory for all students. With permission, a student may attend another laboratory session, if that section is not full. However, it is the student's responsibility to notify the instructors. A student who misses three laboratories without a valid excuse will receive a grade of "0" for the laboratory and be dropped two (2) letter grades. The valid excuse includes a genuine reason beyond the control of student such as a medical condition, a family emergency or participation in an NMSU sports event or conference. Students must provide a written evidence from an appropriate person. Students that miss four (4) laboratories will receive an "F" for that portion of the course.

For each lab, the students will complete an activity sheet and submit the answers to their TA before the next week's lab. Each lab is worth 20 points. There will be a penalty of 2 points for each day that the lab is late.

The students will be provided with a print copy of the lab activity sheet in the first lab activity. For later weeks' labs, an electronic copy of the lab activity sheet will be uploaded on CANVAS course website at least two days prior to the lab day. Students will need to print and bring the printed copy of the sheet to the lab to complete the lab activity. Those students who forget to bring the printed lab sheets (except for the first lab) will need to submit the answers in the lab sheets

by the end of the day.

For the final grading, one lab with the lowest score will be dropped for each student (13 lab scores will be counted for grades out of total 14 labs). Students will be expected to check on the experiments even as required for a specific activity. Students should arrive in the lab on time. Students who show up 10 minutes or more late in the lab, will receive zero for that lab activity. Lab instructors will provide more specific guidelines for the lab activities. Please talk to your TA for more details and concerns.

### **Know Your Plant Presentation:**

To help you better understand about agricultural and horticultural crops, a group of 4 students will be presented with a live plant/ seed/ economic plant part or a processed plant product two weeks before the talk. Each group will identify the plant, find out its scientific name, place of origin, major state (or country) producer, production practice, uses of plant, processing, and major pests, and a fun fact. Each group will give a PowerPoint presentation of about 6 minutes and will have 1-2 minutes for questions. Each group will submit two multiple questions along with their presentation to be included on the quiz. Your individual contribution will be evaluated by your peers and factored in your individual grade for the group project. You can consult any source for your assignment but you can NOT ask your TAs or the instructor of this course. Your presentation should be concise, informative, and entertaining (be creative!). This activity will be worth 70 points and presentations will be made in lectures on Feb. 14, 16 and 18.

Important: Make sure you attend all the presentations, as there will be special quizzes based on the presentations.

### **Essay Writing Assignment:**

To fulfill the writing component of the class, familiarize yourself with the NMSU library system, and learn more about agriculture and horticulture, you will submit an essay on a chosen topic. The paper should be at least six pages long (double spaced, 1" margins, typical font type, and font size of 12), **not** including bibliography, figures, maps, etc. A good approach to writing the essay would be to present the issue, present multiple viewpoints on the issue, and provide the best solution or viewpoint based upon your research or opinion. You must use a minimum of 10 recent (past 10 years) references, half of which can be from reliable internet sources. A grading rubric will be provided for more specific details.

Plagiarism will be taken very seriously so **DO NOT DO IT!**

The timetable for your paper is as follows:

Select a topic	January 28*	10 pts. (*approved by Feb. 4)
Rough draft due	March 4	40 pts. - will be returned March 25
Final draft due	April 8	50 pts.- will be returned April 22
		<b>100 pts total</b>

**Below are some examples of topics for the essay assignment. You could choose any of these (first come, first serve):**

"How should genetically modified plants be managed and how will they affect humankind?"

"How will global warming affect plants on Earth and how will plants affect global warming?"

"On a global scale, how can an ever expanding population be fed while reducing soil erosion, reducing new land development, and preserving natural ecosystems?"

"In the Mesilla Valley of New Mexico, how can crop production agriculture be sustained with increased domestic and international competition, decreasing resources, and increased urbanization?"

"With the recent food safety scares involving fresh produce, how can we ensure that produce is safe to eat?"

"Should corn be grown for ethanol fuel and what effect will increased corn production have on commodity prices, fuel costs, energy dependence, and the environment?"

"Why does steer manure smell so bad when it's fresh and so "sweet" when it's composted?"

"Organic or conventional grown produce, which is better and why?"

"With the increased prices for farm commodities such as corn, wheat, soybeans, etc., should U.S. farm subsidies and price supports continue? Why or why not?"

"If the human population keeps growing and arable farmland keeps decreasing at their current rates, when will we run out of food?"

"Is the US agriculture really feeding the world?"

"Why do we grow different crops in New Mexico than in Pennsylvania?"

### **Extra Credit:**

There will likely be opportunities for extra credit throughout the semester. Please take advantage of these opportunities early as they will not be offered upon

request later in the semester:

1. **Hort Forum, OASIS (Organization of Aggie Students Inspiring Sustainability), Turf Club, or Environmental Science Student Organization (ESSO) meeting attendance.** These groups are undergraduate student clubs in the Dept. of Plant and Environmental Sciences. They hold meetings every week or every two weeks during the semester. Usually, they have free food at their meetings. For every two consecutive meetings that you attend during the semester, you will receive five extra credit points. Their semester meeting schedule will be announced during class.
2. **Blood donation:** For each unit of blood that you donate during the semester, you will receive five extra credit points. United Blood Services is located on Commerce Dr. close to the postal annex, Sam's Club, etc. After you have made your donation, please show your donation card to the instructor to receive credit. Sorry, plasma does not count.

### Grading Scale:

If you are taking this course as "Pass/Fail", you must get at least a "C" to receive credit. Late assignments will be docked 10% each day they are over-due. Grades will be determined on a total basis as follows:

10 quizzes @ 10 pts each=	100
2 exams @ 100 pts each=	200
1 final @ 150 pts=	150
13 labs @ 20 pts each=	280
'Know Your Plant' presentation	70
'Know Your Plant' Quizzes	30
Essay Writing Assignment	100
<b>TOTAL</b>	<b>910</b>

### Grades:

90 - 100% A  
80 - 89 B  
70 - 79 C  
60 - 69 D  
0 - 59 F

## Tentative Lecture Sequence

Topic	Relevant Book Chapter(s)
Introduction and course objectives	-
Why Plant Science	28
Agriculture today	28
Classification and Nomenclature	1
Origin of cultivated plants	2
Structure and Anatomy	3, 4
Plant Growth and Development	15, 16
Environmental Factors in Plant Growth	11-14
Soils and Soil Management	5, 6, 10
Water	9
Plant Propagation	17
Plant Science Applied	20-24
Wrap-up	-

### Important Dates:

January 28	Paper topic is due today
February 14, 16, 18	Know Your Plant Presentations in lectures (plants/plant products will be distributed ~January 28)
February 18	Exam I- 12:30pm-1:20pm, Room 339 Knox Hall
March 4	Essay assignment rough draft due
March 7-11	Spring Break; No Class
March 17	Last day to drop with a 'W'
April 1	Exam II- 12:30pm-1:20pm, Room 339 Knox Hall
April 8	Essay assignment final draft due
April 29	Last day of lecture before final exam week
May 6	*Final Exam 10:30am-12:30pm, Room 339 Knox Hall

If you identify a conflict for the final exam on May 6<sup>th</sup>, you must notify the instructor before **April 22<sup>nd</sup>, 2022**.

### Disclaimer:

The information in this schedule is subject to change at the instructor's discretion. You will be notified of these changes if/when they become necessary.