

Course	Instructor	Prerequisites	Major Restrictions	Course Modality	Instructor Comments
BIOL 101: Intro to Biology	Connell	None	Registration is open to all students. No Labs first week.	Mix of synchronous and asynchronous for both lecture and lab.	<ul style="list-style-type: none"> • Class: asynchronous lectures posted every Monday. Required synchronous Thursday zoom sessions during our regularly scheduled time to discuss content, homework, and discussion board topics. Breakout sessions will be utilized to work on homework in groups. • Lab: lab recordings will be posted every Monday. Three required synchronous zoom sessions during your regularly scheduled lab time. • Office hours: synchronous over zoom.
BIOL 204: Intro to Evolution, Ecology & Biodiversity	C. Schwarz	CHEM 161 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Asynchronous lectures, synchronous labs	Asynchronous lectures, with some synchronous aspects (q&a times, and once a week small group projects). Lab will have a portion of the allotted lab time that is synchronous.
BIOL 204: Intro to Evolution, Ecology & Biodiversity	Hooper	CHEM 161 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Asynchronous lectures, synchronous labs	
BIOL 204: Intro to Evolution, Ecology & Biodiversity	Kodner	CHEM 161 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Asynchronous lectures, synchronous labs	
BIOL 205: Intro to Cell & Molecular Biology	Lee	BIOL 204; CHEM 161 & 162 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Synchronous lectures, primarily asynchronous labs (one synchronous lab in Week 2)	Lectures and office hours will be held over Zoom, with attendance recommended. Class meetings will consist of interactive lectures and practice problem-solving in breakout groups. The lecture portion will be recorded for student reference. Class assignments will primarily consist of reading assignments, short comprehension quizzes, and short answer practice problems. Exams will be administered over Canvas during scheduled class times. Labs will be primarily asynchronous, with one synchronous meeting in Week 2 during scheduled lab times and pre-recorded demonstrations of laboratory procedures. Synchronous option to consult with lab instructors during scheduled lab times.
BIOL 205: Intro to Cell & Molecular Biology	Wilkinson	BIOL 204; CHEM 161 & 162 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Synchronous lectures, primarily asynchronous labs (one synchronous lab in Week 2)	Lectures are presented synchronously through Zoom. Attendance is not mandatory, but students are encouraged to attend to benefit from group discussions. Lectures will be recorded for student reference. Labs will primarily be asynchronous, with pre-recorded demonstrations of laboratory procedures. The first laboratory meeting, in Week 2, will be synchronous, and scheduled laboratory hours in subsequent weeks will be available for students to

					ask help from lab instructors. Assignments for all lab sections are due weekly on Sunday nights. Synchronous option during the scheduled lab times to consult with GTAs.
BIOL 206: Intro to Organismal Biology	Binney	BIOL 205; CHEM 162 & 163 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Synchronous lectures, Synchronous labs	Synchronous lectures, with an asynchronous option if necessary. Lectures will be recorded for student reference.
BIOL 206: Intro to Organismal Biology	Singh-Cundy	BIOL 205; CHEM 162 & 163 (or concurrent)	Registration is open to all students who have successfully completed the pre-requisites. No labs first week.	Asynchronous lectures, Synchronous labs	Asynchronous lectures and synchronous labs. Scheduled office hours and discussion sessions held via Zoom.
BIOL 321: Genetics	Schulze	BIOL 206	Registration is restricted to Phase II biology, Phase II Biochem, Behavioral Neuroscience, and Secondary Ed. General Science Majors.	Synchronous	Synchronous lectures, with an asynchronous option if necessary. Lectures will be recorded for student reference.
BIOL 321: Genetics	McDonald	BIOL 206	Registration is restricted to Phase II biology, Phase II Biochem, Behavioral Neuroscience, and Secondary Ed. General Science Majors.	Synchronous	
BIOL 322: Genetics Lab	Brooks; Wang	BIOL 321	Initially, registration is restricted to Molecular and Cell, Secondary Teaching, Secondary Ed. - General Science majors, and CHEM/BIOL – Secondary BAE. <u>Beginning on the 3rd day of registration at 11:30am, General Biology, EEO, and Phase II Behavioral Neuroscience majors may register.</u>	Asynchronous lectures, Synchronous labs	Mini lectures will be pre-recorded and released for asynchronous viewing, while lab discussions will be used to discuss content in greater depth, address questions, and to facilitate completion and comprehension of weekly worksheets. The weekly worksheets focus on application of genetic concepts and techniques, primary research papers, experimental design and data analysis.
BIOL 323: Cell and Molecular Biology	Serrano-Moreno	CHEM 351 & 352; (or concurrent) or CHEM 251	Registration is restricted to Phase II Biology, Phase II Biochem, Secondary Ed - General Science, CHEM/BIOL – Secondary BAE, and Phase II Behavioral Neuroscience majors.	Synchronous	Lectures are posted every Monday weekly, with synchronous meetings recapping and actively discussing lecture content and implications on Wednesday and Friday.
BIOL 324: Methods in Molecular Biology with Lab	Brooks, Galati, Pillitteri	BIOL 321 or 323	Initially, registration is restricted to Secondary Teaching, Molecular and Cell Biology, Phase II Biochem majors and CHEM/BIOL – Secondary BAE. <u>On the 3rd day of registration at 11:30am all other Phase II Biology majors may register.</u>	Asynchronous lecture, Synchronous labs	Lecture is pre-recorded and should be watched asynchronously prior to the optional synchronous Monday Zoom lecture. During the optional synchronous Monday Zoom lecture, we will discuss the pre-recorded lecture to increase understanding. There is no reward or penalty for attending the Monday Zoom meeting. However, there may be quizzes that are due at the end of the Monday class meeting, so students are encouraged to attend if they have questions on the material. Labs are synchronous and students are expected to attend their Zoom lab sessions. Students will work with a lab partner, so attending Zoom lab sessions is mandatory. Those who habitually miss their lab section will be penalized. Link to syllabus from Spring 20 quarter

BIOL 325: Ecology	Olson	BIOL 206	Registration is restricted to Phase II Biology majors, CHEM/BIOL – secondary BAE, and Secondary Ed - General Science majors. <u>On the 4th day of registration at 4:00pm, Phase II Behavioral Neuroscience majors may register.</u>	Asynchronous	Asynchronous lectures, Zoom discussions and group work. Zoom office hours. Exams and quizzes will be administered via Canvas.
BIOL 326: Ecology Lab	Van Hees	BIOL 325 or ESCI 325 or concurrent	Registration is restricted to Phase II Biology majors, CHEM/BIOL – secondary BAE, and Secondary Ed - General Science majors. <u>On the 4th day of registration at 4:00pm, environmental science majors may register.</u>	Mix of asynchronous and synchronous	First lecture discussion will be synchronous and all remaining lecture discussions will be asynchronous. Labs will be held synchronously via Zoom. Course will be structured around developing and asking scientific questions of publicly available data from online sources. Students will work in groups of 3-4 to create a novel research project in their own area of interest.
BIOL 340: Biometrics	Pollard	BIOL 206	Initially, registration is restricted to Phase II biology majors. <u>On the 4th day of registration at 4:00pm, Environmental Science majors may register.</u>	Synchronous	Synchronous lectures and labs via Zoom. It is recommended to attend the course synchronously, though course materials will be made available for asynchronous participation if necessary.
BIOL 340: Biometrics	Zinkgraf	BIOL 206	Initially, registration is restricted to Phase II biology majors. <u>On the 4th day of registration at 4:00pm, Environmental Science majors may register.</u>	Synchronous	
BIOL 345: Microbiology	Moyer	BIOL 205; CHEM 351 or CHEM 251	Initially, registration is restricted to Molecular and Cell Biology majors. <u>On the 3rd day of registration at 11:30, all other biology majors may register.</u>	Synchronous	It is recommended to attend the course synchronously, though course materials will be made available for asynchronous participation if needed. Exams and quizzes will be administered via Canvas. Zoom meetings for review sessions prior to exams will not be recorded and attendance is encouraged but considered optional.
BIOL 346: Microbiology Lab	Moyer	BIOL 345 (or concurrent)	Initially, registration is restricted to Molecular and Cell Biology majors. <u>On the 3rd day of registration at 11:30, all other biology majors may register.</u>	Asynchronous	Exams and quizzes will be administered via Canvas. Zoom meetings for review sessions prior to exams will not be recorded and attendance is encouraged but considered optional.
BIOL 348: Human Anatomy and Physiology	Yamamoto	BIOL 101 or BIOL 205	Registration is restricted to JUNIORS and SENIORS in Biology/Anthropology, Biocultural Anthropology, and select HHD majors (movement studies, pre-PT, health & fitness, pre-health, community health, and community health pre-majors). All other students may request an override from the instructor.	Synchronous	Synchronous lecture each Wednesday at scheduled lecture time, Friday office hours online; labs each T and Th synchronous via Zoom, recorded lectures, pre lab Quizzes, pre lecture Quizzes, weekly essays; <u>also the usual lab practical exams online and lecture assessments at midterm and final time. Extra support offered online by Open Lab Teaching Assistants at various times to allow a time to fit everyone!</u>

BIOL 349: Human Physiology with Lab	Lapsansky	BIOL 348 or BIOL 206; CHEM 161	Registration is restricted to JUNIORS and SENIORS in Biology/Anthropology, Biocultural Anthropology and HHD majors. All other students may request an override from the instructor.	Asynchronous	Asynchronous lectures, with some synchronous aspects (office hours, and once-a-week small group worksheet in Zoom breakout rooms). A portion of the allotted lab time is synchronous, via Zoom. Small weekly online quizzes in lecture and lab; online essay at midterm and at the end of the quarter. Student groups develop a research proposal in human physiology. Please read this Welcome letter for more information.
BIOL 397B: Sequence Analysis	D. Schwarz	BIOL 321 or 323	Registration is restricted to Phase II Biology majors. All other students may request an override from the instructor.	Asynchronous	<p>How will the course be taught online?</p> <ul style="list-style-type: none"> · Asynchronously with optional “drop-in” sessions within the scheduled lab time · Weekly required one to one zoom “check-in” with the instructor at a time that is convenient for each student (minimum time 15 min) · Computer based lab assignments that will use analysis programs on the Biology bioinformatics server or the internet · Prerecorded lectures by the instructor and fellow students <p>This is a lab course. How will the lab component be taught online?</p> <ul style="list-style-type: none"> · Sequence analysis is already a computer based “dry lab” even when taught in an actual classroom. It is therefore ideally suited for creating a meaningful upper division lab experience as an online class. · Students will complete computer based data analysis exercises using an online lab manual · Students will develop and conduct an independent research project in which they will test their own question with publicly available data · The instructor will be available for help during optional “drop-in” help sessions, required weekly one on one “check-ins”, during online office hours, and via email. <p>How will my work be evaluated?</p> <ul style="list-style-type: none"> · Low stakes online quizzes to encourage watching of pre-recorded lectures · Completion of lab assignments · Presentations of the work on the independent project · Recorded online lecture on a topic in sequence analysis by each student <p>What resources or equipment do I need?</p> <ul style="list-style-type: none"> · Internet access · Computer or other device with internet access, zoom, and basic text-editing abilities · Data analysis will be conducted externally via the internet, your device does not need to have a lot of computing power or be able to run special software. An internet browser and some room for limited file storage will be enough.

BIOL 407: Marine Ecology	Arellano	BIOL 325; BIOL 326; BIOL 340 or ESCI 340 or concurrent; ESCI 321 or instructor permission	Initially, registration is restricted to EEO and Marine Biology majors. <u>On the 3rd day of registration at 11:30am, all other Phase II biology majors, Behavioral Neuroscience majors and ESCI majors may register.</u>	Synchronous	The face-to-face version of this course is generally scheduled from 8-4:50. This Fall, synchronous discussions and labs will take place during the 12-4:50 time slot listed in classfinder. However, up to an additional 3 hours per week of asynchronous lectures and groupwork will also be required.
BIOL 432: Evolutionary Biology (WP3 Option)	Zinkgraf	BIOL 321	Registration is restricted to Phase II Biology, Behavioral Neuroscience, Secondary Ed. – General Science Majors, and CHEM/BIOL – Secondary BAE majors. <u>Registration for Writing Proficiency (WP3) section requires an instructor override.</u>	Synchronous	
BIOL 444: Seminar Participation	Singh-Cundy	Phase II Biology Major	Registration is restricted to Phase II biology majors. May not be repeated for credit.	Synchronous	Department seminars will be presented via Zoom.
BIOL 445: Host-Microbe Interactions (WP3)	Brodhagen	BIOL 323; BIO 345 (or concurrent)	Registration is restricted to Phase II biology majors.	Synchronous	BIOL 445/545 (Host-Microbe Interactions) will be synchronous, and will be offered as a WP3 course to all students, with a focus on weekly practice in various aspects of scientific writing within the discipline of biology. You'll be asked to do readings and watch videos prior to class. During class meetings via Zoom, we will cover topics in a lecture/discussion setting. Mondays and Wednesdays are geared toward foundational knowledge about symbiosis (and writing). On Fridays, student groups will take turns leading a discussion about a symbiosis-relevant journal article. You'll get comfortable with the primary literature, and with speaking about science in a professional, public forum. You'll also write a literature review on a host-microbe interaction of your choice and present it in PowerPoint format to the class (and, if the class desires, to the general public – your family and friends).
BIOL 464: Biology of Marine Mammals	Acevedo	BIOL 206; ESCI 321 recommended	Initially, registration is restricted to Phase II General Biology, Marine, EEO, and Secondary Teaching emphases. <u>On the 4th day of registration at 4:00pm, Environmental Science majors may register.</u>	Synchronous	<p>The class is intended for upper-level undergraduate students because it requires people who have some experience developing research questions, searching for information, thinking critically, speaking in public and familiarity studying evolution, physiology and ecology.</p> <p>You will learn a lot about the basic biology of marine mammals, but it will require a fair amount of independent work as befitted your academic stage and the number of credits in the class. To fulfill this goal you will need to be an active participant in the classroom because to create enduring understandings I have modified the class format: you will need to have read material available on canvas</p>

					<p>and take a 5-min quiz before arriving to the virtual Zoom classroom, work in virtual breakout rooms with randomly assigned partners to solve problems and answer questions, and participate in virtual class discussions.</p> <p>You will also continue developing the knowledge and skills required of any scientist: finding appropriate sources of information; synthesizing and critically evaluating knowledge; thinking analytically; developing scientific questions; communicating ideas concisely and effectively in written and oral form; working in collaboration with others to integrate knowledge into a coherent body of work; becoming familiar with scientists studying marine mammals; and, most importantly, developing your own ideas and opinions. To fulfill this second goal, you will prepare concept maps to identify the theoretical framework of published research and develop your research ideas on the conservation of marine mammals within an appropriate framework, give an individual presentation to the class evaluating a conservation issue, and review the conservation concept map and the presentation of one of your classmates.</p> <p>Given the collaborative nature of the course and the multiple simultaneous conversations of the virtual classroom, attendance will be required and classes will not be recorded. Please contact me if you will have no reliable access to the virtual classroom during class time.</p>
BIOL 465: Vertebrate Zoology with Lab (WP3 Option)	Anderson	BIOL 206; BIOL 325 or ESCI 325 or MACS 303 or instructor permission	Registration is restricted to Phase II biology majors and Phase II Behavioral Neuroscience majors. On the 4th day of registration at 4:00pm, Environmental Science majors may register. WP3 Section requires an instructor override to register.	Synchronous	
CHEM 471: Biochemistry/Molecular Biology	Amacher/Spiegel	CHEM 163, CHEM 353 or concurrent, BIOL 205	CRNs 40516 and 42006 are restricted to Molecular and Cell biology majors. On the 3rd day of registration at 11:30am, all other biology majors may register. All other majors and those with a pre-health focus must contact chemistry@wwu.edu. CRNs 40083 and 42005 are reserved for Phase II Biochem majors. Restrictions will be lifted by the CHEM department for these CRNs in Phase II of registration.	Synchronous	

BIOL 476: Membrane Transport Proteins	Serrano Moreno	BIOL 323; CHEM 471 recommended	Registration is restricted to Phase II general biology, molecular and cell, Phase II biochemistry, and behavioral neuroscience majors. All other majors may submit an override request to the instructor.	Synchronous	Two synchronous Zoom meetings, online evaluations, with two asynchronous exams. Students are responsible for reading assigned papers and will discuss those papers in our zoom meetings.
BIOL 497S: Evolution and Development of Fishes	Cooper	BIOL 206; MACS 303 or BIOL 321 or BIOL 323 or BIOL 325.	Registration is restricted to Phase II Biology majors. All other students may request an override from the instructor.	Synchronous	Asynchronous option available.