BIOLOGY 190A 1002 / 1201-1208
Introduction to Cell and Molecular Biology
Spring 2024 SYLLABUS

Lecture:	MW 11 – 11:50am, room: JTB 100
Discussion:	Thursdays 6 – 6:50pm, room: depends on section#, *see below*
Instructor:	Dr Elena Pravosudova
email:	epravosudova@unr.edu (**include BIOL190A** in the subject) **please <u>do not</u> use Canvas messages to contact me**
office location & hrs:	SFB 202 MW 2:00-3:00pm, or by appointment

Required materials: Textbook: *Campbell Biology in Focus, **3**e*, Urry *et al.*

Mastering Biology w/Text (Modified; integrated w/Canvas):
Access code provided with new text purchased through *Wolf Shop* or *Textbook Brokers*.
Or: access via WebCampus link to purchase electronically.
Learning Catalytics (LC): Available when you buy **Mastering with eText**,

MasteringBiology®

learning | catalytics

Graduate TA:	Natasha Staneva	stanevanatasha@gmail.com
	office hours: MW 12:00-1:00pm and MW 2:00-4:30pm (SFB 204)	

Learning Assistants (peer instructors helping you during lectures):

Daphne Hollander	dhollander@nevada.unr.edu
Megan Schwartz	mmschwartz@nevada.unr.edu
Kambrya Jackson	kambryaj@nevada.unr.edu
Brianna Reyes	briannareyes@nevada.unr.edu
Brissa Reyes	brissar@nevada.unr.edu
Maria Perez	mariaperez@nevada.unr.edu
Aillis McCormack	aillismccormack@gmail.com
April Murray	aprilmurray@nevada.unr.edu
Alessandra Atienza	aatienza@nevada.unr.edu

Mandatory Discussions (Thursdays 6:00-6:50pm)

Section#	Room#	Leader:	email:
1201	**FA 109**	Muhammad Shamim	mshamim@nevada.unr.edu
1202:	**PE 102**	Brian Guthrie	briantguthrie75@gmail.com
1203:	**ECJH 240L**	Brianna Reyes	briannareyes@nevada.unr.edu
1204:	**NLLC 143**	Brissa Reyes	brissar@nevada.unr.edu
1205:	**FA 253**	Emily Jones	ecjones@nevada.unr.edu
1206:	**EJCH 240K**	Megan Huynh	meganhuynh@nevada.unr.edu
1207:	**EMM 242**	Austin DeShields	atddeshields@gmail.com
1208:	**EMM 112**	Emma Okamura	eokamura@nevada.unr.edu

Student Learning Outcomes: *Upon completion of this course, students will be able to*

- **integrate** knowledge of basic chemistry and major biological molecules to relate structure to cellular function.
- **analyze** the central importance of cells (prokaryotic and eukaryotic) as the units of life where complex metabolic reactions take place.
- **describe** the foundations of Mendelian genetics and chromosomal theory and apply these to contemporary concepts in genetics.
- **apply** basic knowledge of the structure and function of nucleic acids to modern biological research.

Format

For this a **3-credit class.** Which means that you have a 50-min lecture twice a week and a small group 50-min discussion led by an undergraduate peer instructor once a week. The grade that you earn in discussion is included in the overall grade. See your discussion "mini syllabus" (separate Canvas course shell) for details. **Additional short lectures (narrated PowerPoint videos) and other materials are available online.** You are responsible for reviewing online materials and reading textbook chapters **before coming to class (see pp. 5-6).** Please note that the materials used in this course are the intellectual property of the publisher or the instructor and may not be redistributed without permission.

Course Website - lecture (BIOL 190A.1002)

Course materials and access to Mastering Biology available through Canvas. Check this site daily for updates.

Assessments

For all assessments, you will be required to agree to an honor statement:
"I swear upon my honor that I am the person enrolled in this course who is taking this assessment, the answers will be mine alone, and that I will not obtain or provide unauthorized information for this assessment."

- **Midterm,** 100 points
- **Final Exam,** 100 points.
- *__Tests 1 & 3__, 50 points each.
- **Mastering Biology (MB)**. Schedule on pp.5-6 includes due dates for Mastering assignments (DSM and HW). Deadlines may only be extended for excusable, documented absences. To link your WebCampus with MB, you must initially sign into MB through Canvas (**no** Course ID is needed!). **After** linking your accounts, you can access MB externally www.pearsonmylabandmastering.com.
  *The following are the **3 categories of assignments on Mastering** (due dates pp. 5-6):*
  - *Dynamic Study Modules (DSM)* for each textbook chapter are super helpful and will allow you to practice the concepts. 17 DSMs during the semester; **each is due the night before your weekly Mandatory Discussion Group**. To earn credit for a DSM you must complete it by the due date/time, although DSMs are always available for review and practice.
  - *Eight Mastering Biology Homework (HW) assignments*. Each will become available at least one week prior to its due date and must be completed by the due date, to count for credit.
  - *Exam Review practice questions.* Reviews contain questions similar in scope to test questions (but **not the same** questions!). You earn extra credit when completing them by the due date.
- *__Learning Catalytics (LC)__ is a classroom participation tool. Sign in to Mastering Biology and click the "Learning Catalytics" link in the "In-Class Learning" area to verify your access. After properly linking your account, you can access it externally at www.learningcatalytics.com. LC points will contribute to the grade you earn in this class. Earn up to 1 point per question (½ point for participation and ½ point for correctness). **LC access is included in Modified Mastering with eText, or a new book package.**

The lowest of the following three scores: Test 1, Test 3, or LC, will be dropped at the end of the semester.
MASTERING BIOLOGY ASSIGNMENT SCORES, MIDTERM, AND FINAL EXAM SCORES ARE **NOT DROPPED**

Mandatory Discussion Groups (MDG) – separate Canvas shell (BIOL 190A.12xx)

This class has **mandatory** "third hour" discussion group meetings (MDG) every Thursday at 6pm. Discussions are not recitations or tutoring sessions. New content (not yet covered in lectures) will OFTEN be presented during discussions. Check p.1 of this document for the name and contact information of your peer discussion leader. Discussion leaders are former BIOL190A students who have excelled in the class and have been competitively selected for this role. Your **attendance and participation** in discussions will factor into your overall grade.

Grading

Your grade is determined by the points you earn in each assignment/assessment category. It is your responsibility to keep track of your performance via Grade function on WebCampus!

Mastering Biology	**20%**
Midterm	**20%**
Final	**20%**
MDG	**20%**
THE LOWEST OF THE 3 BELOW WILL BE DROPPED:	
Test 1	**10%**
Test 3	**10%**
Learning Catalytics	**10%**
Total	**100%**

A	100 %	to 90.5%
A-	< 90.5 %	to 89.5%
B+	< 89.5 %	to 88.5%
B	< 88.5 %	to 80.5%
B-	< 80.5 %	to 79.5%
C+	< 79.5 %	to 78.5%
C	< 78.5 %	to 70.5%
C-	< 70.5 %	to 69.5%
D+	< 69.5 %	to 68.5%
D	< 68.5 %	to 60.5%
D-	< 60.5 %	to 59.5%
F	< 59.5 %	to 0.0%

It is your responsibility to attend the class and complete assignments on time. Make-up assignments will be allowed **only** under **extreme** circumstances, and only if you notify me no later than the same day that you miss that assignment. You must provide written documentation (such as doctor's notes, funeral notices, court papers, police reports, etc.) to explain the circumstances of the missed work. Make-up exams, if allowed, may be in a format different from the original exam.

University Policies

Deadlines: To drop class and receive a full refund: **Wed., Jan. 31, 2024**
To withdraw from class ("W" on transcript & no refund): **Tues., Apr. 2, 2024**

Statement on Academic Dishonesty:
The University Academic Standards Policy defines academic dishonesty, and mandates specific sanctions for violations. See the University Academic Standards policy: UAM 6,502. **During proctored assessments, all electronic devices, especially smart phones, and watches, must be put away. Use of any unauthorized electronic device will result in automatic failure of that assessment.**

Statement of Disability Services:
Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the Disability Resource Center (Pennington Achievement Center Suite 230) as soon as possible to arrange for appropriate accommodations. For more information, visit the Disability Resource Center.

This course may leverage 3rd party web/multimedia content, if you experience any issues accessing this content, please notify your instructor.

Statement on Audio and Video Recording:
Surreptitious or covert video recording of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be video- or audio recorded only with the written permission of the instructor. To accommodate students with disabilities, some students may be given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

Statement on Maintaining a Safe Learning and Work Environment:
The University of Nevada, Reno is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, or stalking, whether on or off campus, or need information related to immigration concerns, please contact the University's Equal Opportunity & Title IX office at 775-784-1547. Resources and interim measures are available to assist you. For more information, please visit the Equal Opportunity and Title IX page.

Statement on COVID-19 Policies:
Students must stay home or leave campus immediately if COVID-19-like symptoms develop. You are encouraged to call your health care provider for an assessment and possible COVID-19 testing. You should still get tested if experiencing COVID-19 like symptoms. Free walk-in COVID-19 testing is available for University of Nevada, Reno students at the Student Health Center. No appointment necessary. Call the SHC at (775) 784-6598 for updated hours. Additional information on COVID-19 policies can be found here.

Failure to Comply with Policy (including as outlined in this Syllabus) or Directives of a University Employee
In accordance with section 6,502 of the University Administrative Manual, a student may receive academic and disciplinary sanctions for failure to comply with policy, including this syllabus, for failure to comply with the directions of a University Official, for disruptive behavior in the classroom, or any other prohibited action. "Disruptive behavior" is defined in part as behavior, including but not limited to failure to follow course, laboratory, or safety rules, or endangering the health of others. A student may be dropped from class at any time for misconduct or disruptive behavior in the classroom upon recommendation of the instructor and with approval of the college dean. A student may also receive disciplinary sanctions through the Office of Student Conduct for misconduct or disruptive behavior, including endangering the health of others in the classroom. The student shall not receive a refund for course fees or tuition.

Class Absence Policy: For university policy regarding class absence, see UAM 3,020.

Statement for Academic Success Services:
The student-run Biology Help Center (BHC) is your primary academic success resource for this class. Updates on the BHC schedule will be posted on WebCampus.

Additionally, your student fees cover usage of the University Math Center (775) 784-4433, University Tutoring Center (775) 784-6801, and University Writing Center (775) 784-6030. These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

Biology 190A 1002 Spring 2024 TENTATIVE schedule

Learning Catalytics (LC) during class Homeworks (HW) **Tue 11:59pm** Dynamic Study Modules (DSM) Wed **11:59pm**

Pre-recorded Lecture videos: you must watch the videos highlighted yellow (18 total) at the beginning of each week

	Date	Topic	LC#	Chapter	Assignment	due date
Week 1	**Lecture videos for this week: CH 1 part 1 (24:53 min); CH 1 part 2 (14:02 min); CH 2 (15:55 min)**					
	M Jan 22	Introduction, Science of Biology	LC1	Ch 1	Intro to MB and How DSM work extra credit	01/23 01/23
	W Jan 24	Chemistry of Life	LC2	Ch 2,3	DSM ch1	01/24
	Th Jan 25	**MDG1** video "Introduction: Foundations of Biology" (15:36 min); complete worksheet				01/25
Week 2	**Lecture videos: CH 3 part 1 (11:41 min); CH 3 part 2 (31:17 min)**					
	M Jan 29	Carbon, Biological Molecules	LC3	Ch 3	**01/31 last day to drop, full refund**	
	W Jan 31	Carbon, Biological Molecules	LC4	Ch 3	DSM ch2 & ch3	01/31
	Th Feb 1	**MDG2** videos "Chemistry in the context of Life" (19:11 min) & "Bio Macromolecules" (15:30 min); complete BOTH worksheets (2) before class				02/01
Week 3	**Lecture videos: CH 3 part 3 (29:57 min); CH 4 (26:13 min)**					
	M Feb 5	Biological Molecules	LC5	Ch 3	HW01	02/06
	W Feb 7	Biological Molecules, Cells	LC6	Ch 3, 4	DSM ch4	02/07
	Th Feb 8	**MDG3** video "Tour of the Cell" (09:26 min); complete worksheet before class				02/08
	Mastering Review Questions ch 1-4 extra credit due 11:59pm Sunday					02/11
Week 4	**Lecture video: CH 5 part 1 (8:59 min)**					
	M Feb 12	Cells: structure and function	LC7	Ch 4	HW02	02/13
	W Feb 14	**TEST 1 ON CHAPTERS 1-4**			DSM ch5	02/14
	Th Feb 15	**MDG4** video "Membrane Processes" (20:28 min); complete worksheet before class				02/15
Week 5	**Lecture videos: CH 5 part 2 (29:13 min); CH 5 part 3 (15:01 min)**					
	M Feb 19	Presidents' Day, no classes				
	W Feb 21	Membrane processes	LC8	Ch 5	DSM ch6	02/21
	Th Feb 22	**MDG5** video "Energy Processes" (14:58 min); complete worksheet before class				02/22
Week 6	**Lecture videos: CH 6 part 1 (14:27 min); CH 6 part 2 (20:41 min)**					
	M Feb 26	Membrane processes, Energy, Enzymes	LC9	Ch 5, 6	HW03	02/27
	W Feb 28	Respiration	LC10	Ch 7	DSM ch7	02/28
	Th Feb 29	**MDG6** 2 videos "Cell Resp Part 1 and Part 2" (29:38min); complete worksheet before class				02/29
Week 7	**Lecture videos: CH 7 part 1 (12:44 min); CH 7 part 2 (18:40 min); CH 7 part 3 (24:12 min)**					
	M Mar 4	Respiration	LC11	Ch 7	HW04	03/05
	W Mar 6	Photosynthesis	LC12	Ch 8	DSM ch8	03/06
	Th Mar 7	**MDG7** video "Photosynthesis" (12:12 min); complete worksheet before class				03/07
	Mastering Review Questions ch 5-8 extra credit due 11:59pm Friday					03/08
Week 8	**Lecture videos: CH 8 part 1 (16:36 min); CH 8 part 2 (22:53 min)**					
	M Mar 11	**MIDTERM PART 1 ON CHAPTERS 1-8**				
	W Mar 13	**MIDTERM PART 2 ON CHAPTERS 1-8**			DSM ch9	03/13
	Th Mar 14	**MDG8** video "Cell Cycle" (15:00 min); complete worksheet before class				03/14
Week 9	**Lecture videos: CH 9 part 1 (8:44 min); CH 9 part 2 (11:58 min); CH 10 part 1 (10:32 min); CH 10 part 2 (18:19 m)**					
	M Mar 18	Cell Cycle and Mitosis	LC13	Ch 9		
	W Mar 20	Meiosis	LC14	Ch 10	DSM ch10	03/20
	Th Mar 21	**MDG9** video "Meiosis" (15:22 min); complete worksheet before class				03/21
10	03/23-03/31	SPRING BREAK			**04/02: last day to drop with a W**	
Week 11	**Lecture videos: Mendelian Genetics (10:32 min); Mendelian Exceptions (8:42 min); CH 11 part 1 (43:11 min)**					
	M Apr 1	Mendelian Genetics	LC15	Ch 11	HW05	04/02
	W Apr 3	Mendelian Exceptions	LC16	Ch 11	DSM ch11	04/03
	Th Apr 4	**MDG10** video "Genetics" (34:29 min); complete worksheet before class				04/04

Week 12	**Lecture videos: Human Genetics (6:16 min); Chromosomal Basis (14:21 min); CH 11 part 2 and CH 12 (38:45 m)**					
	M Apr 8	Human Genetics	LC17	Ch 11, 12	HW06	04/09
	W Apr 10	Chromosomal inheritance	LC18	Ch 12	DSM ch12	04/10
	Th Apr 11	**MDG11** video "Gene Dosage and Mend Exceptions" (41:00 min); complete worksheet b4 class				04/11
	Mastering Review Questions ch 9-12 extra credit due 11:59pm Friday					04/12
Week 13	**Lecture videos: DNA (13:55 min); CH 13 part 1 (9:08 min); CH 13 part 2 (45:40 min)**					
	M Apr 15	**TEST 3 ON CHAPTERS 9-12**				
	W Apr 17	DNA	LC19	Ch 13	DSM ch13	04/17
	Th Apr 18	**MDG12** video "Molecular Basis of Inheritance" (31:11 min); complete worksheet before class				04/18
Week 14	**Lecture videos: Protein Synthesis (10:13 min); CH 14 part 1 (18:32 min); CH 14 part 2 (28:29 min)**					
	M Apr 22	DNA	LC20	Ch 13	HW07	04/23
	W Apr 24	DNA, Protein Synthesis	LC21	Ch 13,14	DSM ch14	04/24
	Th Apr 25	**MDG13** video "Transcription and Translation" (18:45 min); complete worksheet before class				04/25
Week 15	**Lecture videos: Regulation of Gene Expression (8:48 min); CH 15 (18:20 min)**					
	M Apr 29	Protein Synthesis	LC22	Ch 14		
	W May 1	Regulation of Gene Expression	LC23	Ch 15	DSM ch15	05/01
	Th May 2	**MDG14** video "Gene Regulation" (19:38 min); complete worksheet before class				05/02
Week 16	**Lecture videos: CHs 16 and 18 (31:09 min); CH 17 Viruses (22:47 min)**					
	M May 6	Stem Cells, Cancer, & Viruses (selected topics)	LC24	Ch 16/18	HW08	05/07
	W May 8	**PREP DAY**			DSM ch16 and 17	05/08
		Mastering Review Questions ch 13-16 extra credit due 11:59pm				05/08
	W May 15 10:15-12:15p	**FINAL EXAM ON CHAPTERS 9-18** Please note **different time**!				

Online Videos: you must watch the 21 videos highlighted yellow (in the schedule above and table below), before class.

#		Title	min
	Test 1		
1	Ch. 1	pt 1_ charact of life	24:53
2		pt 2_sci method	14:02
3	Ch. 2	chem	15:55
4	Ch. 3	pt 1_ isomers_funct groups	11:41
5		pt 2_polymers_carbs&lipids	31:17
6		pt 3_proteins&nuc acids	29:57
7	Ch. 4	cells	26:13
	Midterm Exam		
8	Ch. 5	pt 1_memb intro	8:59
9		pt 2_memb transport	29:13
10		pt 3_cell signaling	15:01
11	Ch. 6	pt 1_energy concepts	14:27
12		pt 2_ATP&enzymes	20:41
13	Ch. 7	pt 1_respir overview	12:44
14		pt 2_glycolysis_CAC	18:40
15		pt 3_oxid phos_review_ferm	24:12
16	Ch. 8	pt 1_intro_and_pigments	16:36
17		pt 2_light rxns &Calvin cycle	22:53

#		Title	min
	Test 3		
18	Ch. 9	ch 9_cell cycle	8:44
19		virtual lecture	11:58
20	Ch. 10	ch 10_meiosis	10:32
21		virtual lecture	18:19
22	Ch. 11/12	ch 11_mendelian gen	10:32
23		ch 11_mend exceptions	8:42
24		virtual lecture	43:11
25		Ch11/12_human genetics	6:16
26		ch 12_chromosomal basis	14:21
27		virtual lecture- pedigrees	38:45
	Final Exam		
28	Ch. 13	ch 13_DNA	13:55
29		virtual lecture pt 2	45:40
31	Ch. 14	ch 14_prot synth	10:13
32		virtual lecture pt 1	18:32
33		virtual lecture pt 2	28:29
34	Ch. 15	reg of gene expression	8:48
35		virtual lecture	18:20
36	Ch. 16/18	stem cells, cancer, genomics	31:09
37	Ch. 17	virtual lecture	22:47

Welcome to Biology 190A!

BIOL190A is a survey of fundamental principles in Biochemistry, Molecular Biology, Cell Biology, Genetics, Developmental Biology, Biotechnology, and Genomics. This course is a part of the required curriculum in Biology, Biochemistry, Neuroscience, Microbiology and Immunology, Animal Science, Biotechnology, Nutrition, Environmental Science, Wildlife Ecology, Forest Management, Chemical Engineering, and some other majors. Completion of Chemistry 121L/A (or equivalent) with a C- or better is required. **Solid understanding of basic chemistry is crucial for your success in BIOL 190A.**

Modern Biology is a diverse and HUGE field of study. As a science major, you probably know that it is also the most fascinating and rapidly evolving discipline! The first semester of introductory biology can be overwhelming for students. But if you are prepared to work hard, it will be fun! I cannot stress enough how important science education and knowledge of major biological principles has become lately. I am hoping that you use this opportunity to learn basics of cell and molecular biology to not only expand your own knowledge, but to become an advocate for accurate scientific information among your friends and family.

You will be responsible for 1) watching and taking notes on pre-recorded online lecture videos (guided note outlines are provided for you!); 2) attending two weekly 50-min lectures where the concepts presented in online videos will be reviewed and elaborated on; 3) participating in mandatory weekly 50-min peer-led discussions; and 4) regularly completing homework assignments. You will also read the assigned textbook chapters on a regular basis – preferably before watching online videos and attending lectures. Some exam and quiz questions will be drawn directly from the lectures and may not be covered in the book, and some will be based on the textbook and may not be covered in the lectures. Thus, studying both lecture notes and the textbook chapters is equally important. Overall, to be successful in this class, be prepared to spend 6+ hours per week studying Biology on your own, in addition to attending lectures and discussions.

The topics that you are about to explore are all related to one another. You will quickly realize that you must first sort out what is that you are learning: concepts (initially may be hard but end up being the most rewarding when you get them!), language of biology (can be tedious, be patient!), or facts (easiest if you are good at memorizing). Study techniques for these three categories of knowledge are different and recognizing it will make learning easier for you. See me if you need help. Trust me, **trying to simply memorize it all will not work!!**

There are certain ethical and courtesy expectations that I have for you as my student. Please arrive at the lectures and discussions on time, and do not leave early just because you got bored (happens to the best of us). If you do have to leave early, please take a moment to notify me or your peer instructor before the class starts. Be prepared to be an active learner during both lectures and discussions! This means; become familiar with your classmates, come to class prepared, and do not hesitate to ask questions. While completing assessments (in-lecture questions, exams, quizzes, or homework), do not copy material from other individuals or online resources; do not post class materials online without my permission – all of that is cheating, and it will not be tolerated. Cheating also includes but is not limited to drifting your eyes during tests, submitting work that is not your own, using external resources during tests, sharing assessments and assignments with your friends or with an online audience. Details of University Policies on Academic Standards can be found at https://www.unr.edu/administrative-manual/6000-6999-curricula-teaching-research/instruction-research-procedures/6502-academic-standards, please make sure to become familiar with them, this is one of your responsibilities as a student. **During proctored classroom exams and quizzes, all electronic devices, especially smart phones and watches, must be put away. Use of any unauthorized electronic device will result in automatic failure of that assessment.**

Keep in mind that as your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone.

About myself: This is my seventeenth year at the University. My background is in Ornithology (birds!) and Animal Behavior. I earned my undergraduate degree and my M.S. in Zoology in St. Petersburg, Russia. After spending a few years as a field biologist, I became a graduate student at Ohio State University where I earned my PhD in Evolution, Ecology, and Organismal Biology. I also discovered my love for teaching while I was in grad school and have been grateful to have the best job in the world ever since. I will be more than happy to share my knowledge and experience with you. I am looking forward to a great semester!

Elena