

BIOL 801: Principles of Immunology (3 credits), Section 01, Spring 2023

Instructor: Dr. Joseph Dolence

Email: dolencejj@unk.edu (either email or discussion board is best way to reach me for questions or concerns)

Office: BHS 221

Phone: 308-865-8749

Getting in touch "Office hours": I will be available Monday-Friday during the day from 8AM CST-5PM CST to respond to messages you have. On Canvas, there will be a discussion board for any questions you have, in addition, feel free to email me. I will check my email periodically through the day and you can expect a response by the end of the day most of the time. If I am unable to get to you, I will try my best to respond to you with an estimated response time. If you want, you can also set up an appointment. During appointments, I will be available via phone or online face-to-face via Zoom. Please send me an email to set up an appointment. *I want you to be as successful as possible and part of that is accessibility to me.* Therefore, if you have questions or concerns, please contact me.

As for weekends or after working hours (after 5PM CST), my email checking will be intermittent. I will try my best to get back to you as soon as possible, but if I can't, I will respond the next day, or in the case of weekends, on Monday at the latest.

Course materials

Required: The Immune System, 5th edition. Other required course materials will be posted on course Canvas site.

Recommended: How the Immune System Works, 5th edition by Sompayrac. How the Immune System Works is an excellent companion resource that will help introduce you to the field and most importantly, the unique language of immunology. While it is a great book to have as a resource, on our course Canvas site I provide a link to a website that has posted the entire book for you to read. As you learn the concepts of immunology, you will find the simple language in the book to be engaging, fun, and informative. *I'll also let you in on a secret: it's the book I read to first learn immunology.*

Students should contact the LoperTECH Help Center with questions about computer requirements required by all UNK Online students. The following website provides contact information: LoperTECH Help Center

One thing: your computer needs to be equipped with a webcam and microphone to complete assignments in the course.

Canvas

Our course Canvas site will be a repository for all things related to the class: recorded lectures, lecture slides, assignments, exam helps, additional readings, links of interest, and your grade. You should take time to become familiar with our course Canvas site (via UNK website).

Course description

An in-depth discussion of the principles of modern immunology. Major topics of discussion will include: cellular components of the immune system; antibody structure, function and synthesis; function of cytokines and complement; MHC structure and function; and the immune system and disease. A competent background in cell biology and/or biochemistry and microbiology is strongly recommended. Offered online, Spring only.

Course objectives

The following objectives will be met upon successful completion of this course:

1. A greater understanding of basic and advanced principles of immunology, specifically about the following topic areas: The structural and functional aspects of the immune system; Structure and function of antigen receptors (TCR and BCR) and antibody molecules; Antigen-antibody interaction; Antigen recognition and response; Development of T and B cells; Disorders of the immune system including allergies and hypersensitivities, immunodeficiencies, tolerance, and autoimmunity; Immunobiology of tissue transplants; Basic aspects of cancer and cancer therapy that relate to immunology.

2. You will gain experience in analyzing and presenting the findings on a primary literature article about an immunological topic.
3. You will increase your understanding of experimental design, scientific writing, and ultimately, learn how to most effectively communicate why you should be given financial resources to study the area of immunology in which you are interested through writing letter of intent for a grant proposal.

Course Schedule and Video Lecture Schedule

Please see calendar for the schedule of all our lectures, assignments, exams, other important dates, etc. Also take note of the video lecture schedule document. You are responsible for watching the videos by the end of the week and completing required assignments. The lecture schedule for the course is tentative. We will adjust as necessary.

Attendance

Course policy (please see ***Assignment policies*** and ***Make-up work*** sections below for more information)

Because this is an online course, attendance means viewing all the lectures and participating in the course. Failure to participate in the course to the best of your ability will result in lower comprehension of course material and a lower grade. Weekly discussion boards will be assigned on topics from lecture and other course materials, so failure to participate in these discussions will significantly impact your ability to learn the material and perform well in this course.

University policies and guidelines

Student attendance in online courses is defined as active participation in the course. Online courses will, at a minimum, have weekly mechanisms for student participation, which will be documented by any or all the following methods: discussion board, assignments, quizzes, etc. Students are responsible for informing the instructor about their absence from class and for completing assignments given during their absence.

Grading for BIOL 801 Graduate

Three 100-point exams	300 points
Final exam	150 points
Four 25-point problem sets	100 points
Weekly discussion participation (10 pts/week)	160 points
Literature oral presentation	100 points
Grant proposal written assignment	100 points

Total: 910 points

Letter grades will be determined by the percent of the total possible points you earn:

93-100% = A	80-81% = B-	68-69% = D+
90-92% = A-	78-79% = C+	62-67% = D
88-89% = B+	72-77% = C	60-61% = D-
82-87% = B	70-71% = C-	59% or less = F

Please note: At the end of the semester, I round up (never down), if you are within 0.5% of the next letter grade up.

Student academic workload policy: One credit is defined as: 1. Not less than one class hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week for approximately fifteen weeks for one semester credit hour of credit. 2. At least an equivalent amount of work as outlined in 1. above for other academic activities as established by the institution including laboratory work. Alternative explanation (with less legalese): one credit is defined as equivalent to an average of three hours of learning effort per week (over a full semester) necessary for an average student to achieve an average grade in the course. Therefore, expect to spend an additional two hours a week on course work outside the classroom for every hour in the classroom or laboratory. More information can be found under the *Semester Credit Hour Definition* on the following website: UNK Student Load

Coursework

Exams: There will be four exams during the semester. The due dates of the first three exams are: **Friday, February 17, Friday, March 17, and Friday, April 21.** The cumulative final exam will be due on **Wednesday, May 17.** **Exams must be turned in by 5PM CST on due date.** Instructions on how to complete the exams and turn them in will be posted to Canvas.

Problem sets will be assigned throughout the semester. Problem sets are due by 5PM CST (check course calendar).

Weekly discussion boards will be assigned throughout the semester on Canvas. These boards will be a great way to breakdown and dive deeper into course content. Each week, a new topic will be examined based on the topic we are covering. Instructions for how to participate in these discussions will be posted to Canvas.

Oral presentations: Each of you will select a primary literature article from the last 3 years (2020-2023) about an immunological topic of your choice and record a 20-minute presentation either using Zoom, VidGrid, or Yuja (VidGrid and Yuja are video recording softwares found in Canvas). Part of your grade will be participating in a discussion board about the presentations. The specifics of this assignment will be found on the course Canvas site.

Grant proposal written assignment: During the semester, you will conceive, design, and write a letter of intent for a grant proposal to study a topic related to immunology. In this way, you will increase your understanding of experimental design, scientific writing, and ultimately, learn how to most effectively communicate why you should be given financial resources to study the area in which you are interested. A draft of your proposal is due **Friday, March 24**, with the final draft due on **Friday, May 5**. More details about this assignment will be provided on the course Canvas site.

Assignment policies (please read late assignment policy)

You will submit your assignments via links on Canvas. For each particular assignment, I will dictate what kind of file you are to upload. Most of the time it will be either a Word, Excel, PowerPoint, or PDF file. While I will accept files emailed to me, my strong preference is for you to upload them to Canvas. Please name your files starting with your last name so it is easy for me to track your assignments (e.g. Dolence Assignment 1).

Late assignments will be accepted*, with penalty based on how overdue the assignment is. Any late assignment will be deducted 10% per day it is late, and after 4 days (so at the start of day 5), a zero will be given for the assignment. Using an example to illustrate the policy: handing in an exam at 5:01PM on the due date will constitute a 10% penalty, and at 5:01PM each of the following days (second late day through fourth late day) you would lose an additional 10%. At 5:01PM on the fifth late day, a zero will be given.

***Any assignment not turned in by 5PM CST on Wednesday, May 17 (Final Exam is due at this time) will not be graded and be entered into the gradebook as a zero. No exceptions to this will be allowed unless an incomplete is granted in the course.**

Make-up work

Because this is an online course, you should be able to work around your schedule to complete coursework. However, if there is an extenuating circumstance that requires you to miss a due date, please talk to me. I will work with you if something happens to you that is due to unavoidable or legitimate circumstances.

Classroom Expectations

The following guidelines will help your work more efficiently in this course. Please carefully review these guidelines and follow them.

1. You are expected to maintain academic integrity in this course according to the student academic behavior standards. For further details look at: Undergraduate Student Policies and/or Graduate Student Policies OR keep reading below!
2. Keep up with the readings and course materials. You will have chapters, discussion postings, and other materials to read for class. You will have lecture videos to watch. As with any learning experience, the more you can put into reading, thinking, and applying the material, the more you will get out of the course.

3. Be prepared to spend at least 6 - 9 hours per week working on this course. If you are less experienced with online learning, and/or less experienced with the content of this course, expect to spend more hours per week to participate fully.
4. Don't turn in late assignments. Late submissions will result in a lower grade.
5. Work with others. You are required to make every effort to work effectively and promptly with others in discussion boards. Fair criticism of your failure to work effectively with others may significantly affect your grade.

Academic Integrity Policy

The maintenance of academic honesty and integrity is a vital concern of the University community. Any student found in violation of the standards of academic integrity may be subject to both academic and disciplinary sanctions. Academic dishonesty includes, but is not limited to, the following:

1. **Cheating:** Copying or attempting to copy from an academic test or examination of another student; using or attempting to use unauthorized materials, information, notes, study aids or other devices for an academic test, examination or exercise; engaging or attempting to engage the assistance of another individual in misrepresenting the academic performance of a student; or communicating information in an unauthorized manner to another person for an academic test, examination or exercise.
2. **Fabrication and falsification:** Falsifying or fabricating any information or citation in any academic exercise, work, speech, test or examination. Falsification is the alteration of information, while fabrication is the invention or counterfeiting of information.
3. **Plagiarism:** Presenting the work of another as one's own (i.e., without proper acknowledgment of the source) and submitting examinations, theses, reports, speeches, drawings, laboratory notes or other academic work in whole or in part as one's own when such work has been prepared by another person or copied from another person.
4. **Abuse of academic materials and/or equipment:** Destroying, defacing, stealing, or making inaccessible library or other academic resource material.
5. **Complicity in academic dishonesty:** Helping or attempting to help another student to commit an act of academic dishonesty.
6. **Falsifying grade reports:** Changing or destroying grades, scores or markings on an examination or in an instructor's records.
7. **Misrepresentation to avoid academic work:** Misrepresentation by fabricating an otherwise justifiable excuse such as illness, injury, accident, etc., in order to avoid or delay timely submission of academic work or to avoid or delay the taking of a test or examination.
8. **Other Acts of Academic Dishonesty:** Academic units and members of the faculty may prescribe and give students prior written notice of additional standards of conduct for academic honesty in a particular course, and violation of any such standard shall constitute the Code.

Under Section 2.9 of the Bylaws of the Board of Regents of the University of Nebraska, the respective colleges of the University have responsibility for addressing student conduct solely affecting the college. Just as the task of inculcating values of academic honesty resides with the faculty, the college faculty are entrusted with the discretionary authority to decide how incidents of academic dishonesty are to be resolved. For more information, please visit UNK's *Procedures and Sanctions for Academic Integrity* ([Academic Integrity Website](#)) and the *Student Code of Conduct* ([Student Code of Conduct](#)).

Notice on Use of Copyright Material

The materials on the course Canvas site and given in lecture are only for the use of students enrolled in this course for purposes associated with this course and may not be retained or further disseminated. The materials on the course Canvas site and in class may be protected by copyright, and any further use or dissemination of this material may be in violation of Federal copyright law and University sanctions including failure in the course.

1. The **COVID-19 vaccine*** has proven to significantly reduce positive cases of COVID-19 on campus and in the community. The university encourages students and employees to be fully vaccinated.
*If you have questions about the vaccine, please ask your primary care physician and/or the Public Health Center on campus to get more information.
2. **Monitor yourself daily** for COVID-19 symptoms, even if you've been vaccinated – breakthrough cases (this is when you get COVID-19 after being immunized to COVID-19) do occur! These include, but are not limited to: fever, cough, shortness of breath, headache, body/muscle aches, nausea/vomiting, diarrhea/loose stools, loss of taste/smell/appetite, sore throat, runny nose, chills, abdominal pain/tenderness, and fatigue (Source: Test Nebraska).

If you are sick, contact the Public Health Center on campus to be advised on testing, monitoring, quarantine, and isolation as appropriate. After contacting the Public Health Center, please contact me to craft a plan to ensure you don't fall behind in class. You will still be responsible for course content through other options arranged with me. There will be no penalties for missing classes for COVID-19 related absences.

3. **I am your ally in this course.** While this is always true, it is especially important to state as we all deal with COVID-19 (or any other sickness). You will not lose points because you are absent due to being sick. If you get sick, we will work together to get you caught up!
4. **UNK will continue to monitor active cases** on campus, in the Kearney community and across the state. **UNK will move back to previous phases and update its guidance if circumstances warrant**.**
**Pertinent to this, information about how such policies would impact the course will be posted to our course Canvas site. Given this is an online course, I don't anticipate anything to impact us, but I will keep you posted should anything arise.

Questions regarding COVID-19 should be directed to the Public Health Center unkhealth@unk.edu or 308-865-8254. Questions regarding the COVID-19 academic policy should be directed to Sr. Vice Chancellor Majocha at majochak@unk.edu. Questions regarding Biology department specific requirements should be directed to either Drs. Julie Shaffer (shafferjj@unk.edu) or Kimberly Carlson (carlsonka1@unk.edu), Co-Chairs of Biology.

The above directions must be followed by everyone for the health and safety of our University. Students who do not comply may face disciplinary action from the university. Violations of any University or Campus Policy is a violation of the Student Code of Conduct.

University-wide Course Policies and Resources

Attendance Policy

Your instructor may have indicated on their syllabus an attendance policy specific to their class***. If so, that is the policy with which you must comply. If no other policy is stated, the University-wide attendance policy will apply.

Graduate Student Attendance Policy***

***Please look above for course-specific attendance policy.

Students with Disabilities

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with the UNK Disabilities Services for Students (DSS) office, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu

UNK Statement of Diversity & Inclusion

UNK stands in solidarity and unity with our students of color, our LatinX and international students, our LGBTQIA+ students and students from other marginalized groups in opposition to racism and prejudice in any form, wherever it may exist. It is the job of institutions of higher education, indeed their duty, to provide a haven for the safe and

meaningful exchange of ideas and to support peaceful disagreement and discussion. In our classes, we strive to maintain a positive learning environment based upon open communication and mutual respect. UNK does not discriminate on the basis of race, color, national origin, age, religion, sex, gender, sexual orientation, disability or political affiliation. Respect for the diversity of our backgrounds and varied life experiences is essential to learning from our similarities as well as our differences. The following link provides resources and other information regarding D&I: [UNK Equity Access Diversity Website](#)

Students Who are Pregnant

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact the Student Health office at 308-865-8218. The following links provide information for students and faculty regarding pregnancy rights: [The Pregnant Scholar](#) and [Pregnancy Rights website](#)

If you have an accommodation plan, please see Dr. Dolence as soon as possible, so any necessary arrangements can be made for your learning. No accommodations can be provided until a Reasonable Accommodation Plan is in place. Please remember, plans are not retroactive and cannot be used for assignments prior to the date of the instructor's signature. To the greatest extent possible, University Representatives, shall observe confidentiality with respect to any request for accommodation.

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault

Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes they may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

Local Domestic Violence, Sexual Assault Advocacy Agency: 308-237-2599

Campus Police (or Security): 308-865-8911

Title IX Coordinator: 308-865-8655

Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

Official syllabus statements about Attendance Policy, Students with Disabilities, Diversity & Inclusion, Students Who are Pregnant, and Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault can also be found at the following link: [UNK Syllabus Statements](#)

Spring 2023 BIOL 801 Principles in Immunology
Video lecture Schedule*

Pre-Week 1: Syllabus, Mice as a model, and Molecular Biology/Immunology lab techniques

Week 1: Ch. 1 Elements of the Immune System and Their Roles in Defense

Week 2: Ch. 2 Innate Immunity: Immediate Response to Infection

Week 3: Ch. 3 Innate Immunity: Induced Response to Infection; Chapter 12 Coevolution of
Innate and Adaptive Immunity (Sections 12-1 through 12-9) **End of Exam 1 material**

Week 4: Ch. 4 Antibody Structure and the Generation of B-Cell Diversity **Exam 1 due on Friday**

Week 5: Ch. 5 Antigen Recognition by T Lymphocytes

Week 6: Ch. 6 The Development of B Lymphocytes

Week 7: Ch. 7 The Development of T Lymphocytes **End of Exam 2 material**

Week 8: Spring Break – no new lecture material **Exam 2 due on Friday**

Week 9: Ch. 8 T Cell-Mediated Immunity; Chapter 12 Coevolution of
Innate and Adaptive Immunity (Sections 12-10 through 12-18)

Week 10: Ch. 9 Immunity Mediated by B Cells and Antibodies

Week 11: Ch. 10 Preventing Infection at Mucosal Surfaces

Week 12: Ch. 11 Immunological Memory and Vaccination **End of Exam 3 material**

Week 13: Ch. 13 Failures of the Body's Defenses **Exam 3 due on Friday**

Week 14: Ch. 14 Allergy and the Immune Response to Parasites

Week 15: Ch. 15 Transplantation of Tissues and Organs; Ch. 16 Disruption of Healthy Tissue by
the Adaptive Immune Response

Week 16: Ch. 17 Cancer, Immunity, and Immunotherapy **End of course material**

Week 17: Finals **Final Exam due on Wednesday**

*Subject to change at instructor discretion

Course Schedule*
**Subject to change at instructor's discretion*

January/February							
Week	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	22 <u>Pre-Wk 1 videos</u> Syllabus, Mouse models, and Lab Techniques	23 Classes begin	24	25	26	27	28 Wk 1 Discussion due <u>Week 1 videos</u> Elements of Immune System
2	29	30	31	Feb. 1	2	3	4 Pre-Wk 1 Discuss. due Wk 2 Discussion due <u>Week 2 videos</u> Innate Immunity: Immediate Response
3	5	6	7	8	9 Problem Set 1 due	10	11 Wk 3 Discussion due <u>Week 3 videos</u> Innate Immunity: Induced Response; Coevol. Innate, Adapt Imm.
4	12	13	14	15	16	17 Exam 1 due	18 Wk 4 Discussion due <u>Week 4 videos</u> Antibody Structure and Generation of B-cell Diversity
5	19	20	21	22	23	24	25 Wk 5 Discussion due <u>Week 5 videos</u> Antigen Recognition by T-Lymphocytes
6	26	27	28				

March							
Week	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
6				1	2	3	4 Wk 6 Discussion due <u>Week 6 videos</u> B-cell development
7	5	6	7	8	9 Problem Set 2 due	10	11 Wk 7 Discussion due <u>Week 7 videos</u> T-cell development
8	12	13	14	15	16	17 Exam 2 due	18 No new lecture videos or discussion this week Spring Break - work on your Exam!
9	19	20	21	22	23	24 Grant proposal Letter of Intent draft due	25 Wk 9 Discussion due <u>Week 9 videos</u> T-cell mediated Immunity; Coevol. Innate, Adapt Imm.
10	26	27	28	29	30	31	

April/May							
Week	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
10							1 Wk 10 Discussion due <u>Week 10 videos</u> Immunity Mediated by B-cells and Antibodies
11	2	3	4	5	6	7 Oral Presentations due	8 Wk 11 Discussion due <u>Week 11 videos</u> Preventing Infection at Mucosal Surfaces
12	9	10	11	12	13 Problem Set 3 due	14	15 Wk 12 Discussion due <u>Week 12 videos</u> Immunological Memory and Vaccination
13	16	17	18	19	20	21 Exam 3 due	22 Wk 13 Discussion due <u>Week 13 videos</u> Failures of Body's Defenses
14	23	24 Oral Presentation Discussion due	25	26	27	28	29 Wk 14 Discussion due <u>Week 14 videos</u> Allergy and Immune Response to Parasites
15	30	May. 1	2	3	4	5 Final Grant proposal Letter of Intent due	6 Wk 15 Discussion due <u>Week 15 videos</u> Transplantation: Disruption of Healthy Tissue by Adaptive Immune Response
16	7	8	9 Problem Set 4 due	10	11	12	13 Wk 16 Discussion due <u>Week 16 videos</u> Cancer, Immunity, and Immunotherapy
17	14	15	16	17 Final Exam due	18	19	20