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BIOB 411.01: Immunology Laboratory

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BIOB 411 IMMUNOLOGY LABORATORY

Autumn Semester, 2014

Dr. Scott Wetzel (CHCB 216; Phone 243-2168)

Lab schedule: 1:10 - 4:00 pm on Thursdays in HS 404

Teaching Assistant-

Date	Lab #	Page	Topic
August			
28	1	1	Introduction - grading, animal use, safety, etc.
September			
4	2	5	Cells and organs of the immune system- PART 1
11	3	11	Cells and organs of the immune system- PART 2
18	4	17	Generating polyclonal antibodies- PART 1
25	5	19	Immunoagglutination assays
October			
2	6	23	Immunoprecipitation and Electrophoresis
9	7	29	Immunoblots
16	8	31	Complement fixation assay
23	9	34	Immunofluorescence microscopy ---- MIDTERM EXAM
30	10	37	Passive hemagglutination & Generating polyclonal antibodies – PART 2
November			
6	11	42	Flow Cytometry
13	12	45	ELISA ----- LAB PAPER OUTLINE DUE
20	13	51	Generating polyclonal antibodies- PART 3
27	-		HOLIDAY
December			
5	14	54	Complete analysis of antisera, compile data and Lab Paper
???	-		FINAL EXAM (3:20 to 5:20)
12			LAB PAPER & NOTEBOOKS DUE by 5:00 PM

General Notes:

GRADING- BIOB 411 points are broken down as follows: 200 pts from 2 lab exams (midterm and final), 100 pts from a formal lab report (see below), 70 pts from the lab notebook (5 pts per lab) and 30 points from quizzes. Grades are calculated by 90%, 80%, 70%, and 60% of the total points; which represent the cutoffs for an A, B, C, and D, respectively. Materials turned in late will be reduced by 10% of the total points per day of tardiness. **Students missing more than two labs will be required to drop the course.**

QUIZZES: These are long, and frequently complex laboratory exercises. You **MUST** read the material and prepare for each lab **AHEAD** of time (remember this is a 2 credit course). To insure that you come prepared, we will have unannounced quizzes at the beginning of 6 of the first 12 labs during the semester. These quizzes will be worth 5 points and will cover the lab that day.

LAB PAPER- Each team will receive a mouse for generating "monospecific" polyclonal antiserum. The protocol and results obtained from this portion of the laboratory (labs 4, 10, 13 & 14) will be summarized by each student in a formal report.

The final paper will be typed and double-spaced. The paper is worth ~ 30% of your lab grade. The style of the report follows the format of the *Journal of Immunology* (<http://www.jimmunol.org/site/misc/authorinstructions.xhtml> instructions for full-length articles). It is **STRONGLY** recommended that you read through these directions before writing your paper. The requirements include:

- ❖ Title Page- Title, name(s), address(es), key words
- ❖ Abstract- A summary of your data (250 words maximum)
- ❖ Introduction- the background and justification for your research
- ❖ Materials and methods- a reiteration (in your own words) of the labs
- ❖ Results- tabulated and graphic data as well as text description. This is a description of your data and includes any calculations of % difference, etc. that isn't in your figures. Make sure you reference your figures.
- ❖ Discussion- below
- ❖ References- Not required for the report, but If you use a reference other than the lab book you **MUST** provide a reference. (otherwise this will be plagiarism)

GRADING OF THE PAPER IS AS FOLLOWS:

Journal of Immunology format and 5-page limit---- 10 pts (*only the first 5 pages will be graded*)

Results---quality and data presentation---30 pts

Discussion---- 40 pts. Explain what you might have expected and if your results meet those expectations. Tell the significance of the results. Propose future experiments, etc.

Content---20 pts. Grammar, spelling, etc (this is a 2/3 writing course); reflects the presentation and style.

OUTLINE OF LAB PAPER- Provide an outline of your lab paper to the TA by the due date on page 1. Describe your ideas for presenting the data and how you will arrange the results in the context of the format above. You will receive formal feedback. You are also required to submit your final paper 1 week before the deadline to receive feedback so that you can revise your paper accordingly before you turn it in to be graded.

LAB NOTEBOOK- Each student will maintain a personal and comprehensive lab notebook. Loose-leaf paper is **NOT** acceptable. Record your data and observations **IN PEN** for future reference. Be sure and take your notes **DURING** the lab. Evidence of post-lab entry of observations will lower your grade. Please note that lab notebooks will be picked up periodically during the semester for grading by the TA. **Late notebooks WILL LOSE 1 LETTER GRADE PER DAY and WILL NOT BE ACCEPTED AFTER December 16**

Feedback: Students are highly encouraged to turn in your writing assignment early to get feedback so that you can revise the document before you turn it in for grading.

Laboratory Notebook Requirements:

Each weekly experiment in your lab notebook needs to be fully documented and should read like a formal lab paper. These are the required items and their point values for each week's lab period:

Table of Contents

Example:

Table of Contents

Lab 2 – Cells and Organs of the Immune System I

page 3

Lab 3 – Cells and Organs of the Immune System II

page 7

etc.

In your lab notebook you must have these sections:

Introduction – (1pt) – a couple of sentences/paragraphs describing what the lab will cover.

Procedure – (1pt)

Example:

BIOB 411, Immunology Lab, Professor Wetzel, Fall 2011, University of Montana, pages 11-12

****Note any deviations from lab manual procedure****

Results – (1pt) – Numbers, drawings, etc. This is a description of your data and includes any calculations of % difference, etc. that isn't in your figures.

Discussion/Conclusion – (1pt) – What was expected and what did it mean? Did everything turn out as expected? Was there error? Why did the error occur? Observations, Ideas, Thoughts, Etc.

Take Home Problems - (1pt) – These will be on the chalkboard.