

Cytology and Microtechnique Laboratory

Tuesdays 3:30-6:20

IA Information: Sarah Kane

Email: SK1209@txstate.edu

Office and Hours: TBA

Lab Time - SUPP 435 on TUE @ 3:30PM

*Note: Additional lab times will be scheduled by the student groups

FIRST MEETING: September 6, 2011

You will need a (minimum) 1GB USB Flash (aka jump, thumb) Drive for this course to record your images and move them from place to place. This flash drive should be considered part of your lab notebook (see below) and may be inspected from time to time by the instructors in the course (so it is a good idea not to put personal files on it).

If you are a graduate or undergraduate student doing research, you must meet with Dr. Koke and Sarah BEFORE lab starts to discuss how to best use the cytology lab experience to advance your research.

SCHEDULE

This is a *tentative* schedule of the semester.

Please note that protocols often require longer periods than the designated weekly meeting. Individual groups must collaborate on individual scheduling for such times.

Sept. 6 – Introduction

Sept. 13 – Light Microscopy: Yogurt and onion root lab

Sept. 20 – Introduction to immunofluorescence: Understanding concepts

Sept. 27 – Fixation Methods

Oct. 4 – Cryosectioning

Oct. 11 – Immunohistochemistry/Immunocytochemistry protocols. *Note: the majority of this protocol will be performed outside of the designated lab time so individual group scheduling is required.

Oct. 18- Oct. 25 – Confocal Microscopy. Individual groups' immunolabeled sections and/or cells will be viewed on the Olympus FV1000 Confocal microscope.

Nov. 1 – Image Analysis using FV1000 software and ImageJ

Nov. 8 – Field trip to transmission electron microscope

Nov. 15 – Field trip to scanning electron microscope

Nov. 22 – Lab final exam

Nov. 29 - ALL LAB WORK COMPLETED

Dec. 4 - Posters up on the wall outside 439 by 11:59 PM.

Dec. 5th – Group Poster Presentations

GRADING

The lab portion of this class constitutes 50% (300 points) of your overall grade. Grading will be based on a lab notebook, weekly lab quizzes, participation, poster presentations, and a lab final exam.

Lab Notebook - 50 points: Keeping an accurate and legible lab notebook is very important - it contains all the information that you need to conduct your research. Therefore, you will not be permitted to work in the laboratory without it. Your lab notebook needs to be a bound (not spiral) notebook specifically for cytology and microtechnique. *All entries need to be in ink.* You will keep accurate

notes of the daily exercises in the lab. They will be checked on a weekly basis, and they should include the following:

All protocols and procedures for use of equipment

Recipes for solutions

Progress notes, observations, and data

MSDS sheets for all chemicals used

Quizzes - 75 points: Quizzes will cover information from both lecture and lab. It is advised to bring a calculator because calculations are likely.

Participation - 25 points: Attendance and genuine participation are mandatory. Lab slovenliness WILL result in a grade penalty. The microscopes and microtomes are very expensive and it is a privilege to use them. Failure to follow directions and clean up is unacceptable. A first time offense will result in a grade penalty. A repeat offense will revoke your privilege to that equipment and you will receive a grade of 0 for that assignment.

Poster - 100 points: At the beginning of the semester, students will form small (3-4 member) groups. After processing and imaging the group's individual samples, members of each group will collaborate to put together a poster to be presented to the class on December 5th. Adobe Illustrator is the program most highly suggested for creating the posters. Posters must be well organized. Special attention should be given to the images. The poster presentation should demonstrate a clear understanding of the cytology and microscopy techniques used in the project. See posters outside of SUPP 439 for examples.

There is also an option for students already involved in research projects to utilize the tools and techniques discussed in this course to further advance their research. As stated before, students interested in incorporating microscopy into their research projects must first meet with Dr. Koke and Sarah. If students opt to have individual research projects, their posters will comprise their microscopy-related research findings.

Lab Final Exam- 50 points: The lab final exam will be cumulative.