

# CLINICAL ONCOLOGY PRACTICUM FOR CANCER BIOLOGY STUDENTS

## 1. Goals and Objectives:

This rotation will familiarize graduate students engaged in laboratory cancer research with the presentation, diagnosis, staging, and treatment of cancer from a clinical perspective. This will be accomplished through clinical rotations through four clinical oncology-related disciplines, including Medical Oncology, Radiation Oncology, Diagnostic Imaging and Pathology.

### Specific Learning Objectives:

After completing this rotation, students will be able to:

1. Identify and develop a research hypothesis addressing a clinically relevant problem in Oncology, as assessed via their performance on the “Mock Grant” assignment.
2. Communicate effectively to a clinical audience. Their interactions with clinicians and residents will be assessed using the enclosed Student Evaluation form.
3. Critically evaluate the feasibility and value/relevance of a clinical study. This objective will be assessed by their performance on homework assignments and participation in journal rounds.

## 2. Class Schedule:

The class will be held for 4 weeks during the Summer Session, either from 8AM-12 Noon or from 1PM to 5 PM depending on the individual rotation. Each rotation will be 1 week in duration (See **Table 1**). A case-based clinical oncology discussion will be held with all participating students once weekly from 12 Noon to 1PM. Information regarding specific rotations follows.

**Table 1. Class Schedule**

<b>Rotation</b>	<b>Class Time</b>	<b>Schedule</b>
<b>A. Medical Oncology</b>	8AM-12N	M-Th, 8:30-9:30: Case-based rounds M-F, 9:30-12:00N “Shadowing” of senior veterinary students Daily written “homework” assignments – (1) Monograph describing a select chemotherapy drug; (2) Monograph describing a chemotherapy adverse effect; (3) Monograph summarizing presentation, staging, treatment options for a select tumor type; (4) Course evaluation Fri, 8:30-9:30; Grand Rounds Fri, 10:00-10:30: Argus human-animal bond rounds Fri, 12:00N-1:00PM: Discussion of assigned journal article
<b>B. Radiation Oncology</b>	8AM-12N	M-F, 8:00-12:00: Observation of treatment, patient setups and treatment plan development Tue, 8:00-9:00: Radiation oncology rounds Wed, 8:30-9:30: Radiation oncology orientation Fri, 12:00N-1:00PM: Discussion of assigned journal article
<b>C. Diagnostic Imaging</b>	8AM-12N	M-F, 8:00-9:00: Imaging Rounds M-F, 9:00-10:00: Review of imaging teaching sets M-F, 10:00-12:00: Observation of clinical imaging modality: (1) CT; (2) Radiography; (3) Ultrasound; (4) MRI; (5) Nuclear medicine. Schedule will depend on case availability. Fri, 12:00N-1:00PM: Discussion of assigned journal article
<b>D. Cancer Pathology</b>	1PM-5PM	M-Th, 1:00-2:30: Reading of biopsy submissions M-F, 2:30-3:15: Necropsy M-F, 3:00-4:30: Review of biopsy submissions with pathologist Fri, 12:00N-1:00: Discussion of assigned journal article Fri, 1:10-2:30: Gross pathology rounds

### **A. Medical Oncology**

**Instructor: Douglas H. Thamm, Medical Oncology and Surgical Oncology faculty, residents and nurses**

The goal of this rotation will be to familiarize the student with the presentation, diagnosis, staging and medical/surgical therapies for cancer patients. Students will be involved in all aspects of the clinical oncology service including morning case rounds, oncology topic rounds, new patient receiving with the senior students, and case work up. Each student will be assigned to a senior PVM student and will observe all aspects of the clinical service, including history and physical examination, diagnostic procedures, chemotherapy administration and surgery. Generous exposure to the conduct of oncology clinical trials will be afforded concurrently. Homework, in the form of literature reviews regarding specific medical oncology topics, will be assigned on a daily basis.

### **B. Radiation Oncology**

**Instructors: Susan M. LaRue, Radiation Oncology residents and nurses**

The purpose of this rotation is to familiarize cancer biology graduate students with the use of radiation therapy for the treatment of cancer patients. Students will participate in radiation oncology clinical and chart rounds, where the rationale for using radiation therapy will be discussed. They will also participate in radiation oncology journal club where they will review pertinent literature. They will accompany the radiation oncologist/resident to discuss treatment options with the owner. They will observe and/or assist the radiation oncologist/resident with

hand calculated and computerized treatment planning. They will complete the radiation safety modules necessary for them to observe radiation therapy. They will observe and/or assist the technical staff with all facets of patient care.

### **C. Diagnostic Imaging in Cancer**

**Instructor: Susan L. Kraft, Radiology faculty and residents**

The objective of this rotation is to help students develop a basic understanding in physical and applications of imaging modalities in cancer for diagnosis, prognostication, and evaluation of response to therapy. Students will attend daily imaging rounds and rotate through different imaging areas including diagnostic radiology, ultrasound, CT, MRI and nuclear medicine. Scheduling of these rotations will be based on daily case load. Students will additionally be assigned reading material on the different imaging modalities and case presentations. 1 hour per week will involve discussion of specific cases and review of assigned reading.

### **D. Cancer Pathology**

**Instructor: E.J. Ehrhart, Pathology faculty and residents**

This course seeks to introduce the Cancer Biology student to the histological basis of cancer at the tissue and cellular level as well as the concerns and limitations of a surgical diagnosis. Students will review biopsies with the surgical pathology resident and surgical pathologist on a multiheaded microscope. The resident and pathologist will discuss the histological basis for the diagnosis and address the clinical concerns for the patient and concerns of the clinician (cases not limited to cancer). Due to limited time of the pathologist on duty, review of cancer cases can be further discussed with the pathologist overseeing the Cancer Biology students (Dr. E.J. Ehrhart).

**3. Evaluation Plan:** Students will be graded on a pass/fail basis based on the following:

Attendance: **10%**

Participation in rounds and discussions (engagement in conversation, course evaluations):  
**20%**

Homework: **40%** - Will consist of 4 journal article reviews/discussions, assigned the first day of each rotation and collected / discussed the last day of each rotation. Specific questions regarding each assigned paper will be assigned.

Mock grant proposal: **30%** - Students will be asked to prepare a 1-2 page mock grant proposal (hypothesis and specific aims) that addresses a problem in clinical oncology that they have identified based on their clinical experience or assigned journal article.

Written feedback will be provided to the students by means of a **Student Evaluation Form** and a **Mock Grant Evaluation Form** (see Attachment).

The course and individual faculty will be evaluated by means of a **Course Evaluation Form** (see Attachment).

**4. Recommended Text:** Withrow SJ, and MacEwen EG (Eds.) Small Animal Clinical Oncology, 3<sup>rd</sup> Edition. Philadelphia: Saunders, 2001.

# CLINICAL ONCOLOGY PRACTICUM FOR CANCER BIOLOGY STUDENTS

## Course evaluation Summer 20XX

Please take a moment to fill out the following evaluation concerning the course you just participated in. Your comments help us know what you found useful and what might need changing in order to give you a better learning experience.

**Please provide comments on the following rotations. List both good and bad points.**

### **A. Medical Oncology**

Morning rounds:

*Good points:*

*Bad points:*

Evaluation of New Cases / Rechecks:

*Good points:*

*Bad points:*

Please comment on the personnel you interacted with on this rotation (faculty, residents, nurses/technicians)

### **B. Radiation Oncology**

Rounds and Journal Club:

*Good points:*

*Bad points:*

Client Consultation, Treatment Planning and Setup:

*Good points:*

*Bad points:*

Please comment on the personnel you interacted with on this rotation (faculty, residents, nurses/technicians)

**C. Diagnostic Imaging in Cancer:**

Imaging Rounds / Case Presentations:

*Good points:*

*Bad points:*

Imaging Rotations:

*Good points:*

*Bad points:*

Please comment on the personnel you interacted with on this rotation (faculty, residents, nurses/technicians)

**D. Cancer Pathology:**

*Good points:*

*Bad points:*

Please comment on the personnel you interacted with on this rotation (faculty, residents, nurses/technicians)

**Overall impression of this course**

Good points:

Bad points:

# Student Evaluation for Cancer Biology Clinical Practicum Rotations

## Clinical Participation

Student Name \_\_\_\_\_

Dates of Rotation \_\_\_\_\_

Rotation Name \_\_\_\_\_

At the conclusion of the rotation, each faculty member is asked to complete a student evaluation form. The purpose of the evaluation is to provide feedback to the student regarding their interpersonal relations, professionalism, general knowledge of cancer biology principles, willingness to learn and participate, etc.

Each statement below should be scored on a 1-4 basis as follows:

1. Performance below expectations
2. Expected performance
3. Performance exceeded expectations
4. Excellent performance

NA Not applicable or could not be evaluated

*The following criteria focus on the students' professional preparedness & practice management skills:*

1. \_\_\_\_\_ The student projects adequate self-esteem.
2. \_\_\_\_\_ The student was interested in learning.
3. \_\_\_\_\_ The student got along well with veterinarians in the institution.
4. \_\_\_\_\_ The student got along well with technical staff in the institution.
5. \_\_\_\_\_ The student communicated well with others.
6. \_\_\_\_\_ The student demonstrated initiative.
7. \_\_\_\_\_ The student demonstrated appropriate time management skills.
8. \_\_\_\_\_ The student was enthusiastic.
9. \_\_\_\_\_ The student acted in a professional manner at all times.
10. \_\_\_\_\_ The student demonstrated adequate knowledge of general principles of cancer biology.
11. \_\_\_\_\_ The student was prepared for discussions of journal articles

*The following criterion may or may not apply, depending on your students' activities:*

12. Provide appropriate comments regarding notable strengths or weaknesses. This may address knowledge, skills, professionalism, or personality. Use back of page if necessary.

Recommended grade:

Pass/Fail

Faculty Member's Signature

\_\_\_\_\_

Date \_\_\_\_\_

**Student Evaluation for Cancer Biology Clinical Practicum**  
Mock Grant Evaluation

Student Name \_\_\_\_\_

Criterion	Points	Comments
1. <b>Relevance of Hypothesis to Clinical Medicine:</b> Does the hypothesis address a clinically relevant problem in oncology?		
2. <b>Written Communication Skills:</b> Are the hypotheses and aims clearly and concisely articulated?		
3. <b>Understandability to Target Audience:</b> Is the proposal written in such a way that a <u>clinician</u> can grasp the fundamental concepts?		
4. <b>Feasibility:</b> Could the work be performed at this institution with currently available resources? At the end of the study period, will the results be applicable to the clinical problem addressed?		

Recommended grade:

Pass/Fail

Faculty Member's Signature

\_\_\_\_\_

Date \_\_\_\_\_