New Course Request

Check Appropriate Boxes:  
Undergraduate credit [ ]  
Graduate credit [X]  
Professional credit [ ]

1. School/Division: School of Medicine
2. Academic Subject Code: RAON

3. Course Number: D 703  (must be cleared with University Enrollment Services)
4. Instructor: DesRosiers, C, PhD & Ewing, M. CMD

5. Course Title: Clinical Practicum III - Advanced Topics in Medical Dosimetry
Recommended Abbreviation (Optional): Clinical Practicum III Advanced

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring Semester 2011

7. Credit Hours: Fixed at 6 or Variable from ________ to ________

8. Is this course to be graded S-F (only)? Yes [X] No _____

9. Is variable title approval being requested? Yes _____ No [X]

10. Course description (not to exceed 50 words) for Bulletin publication: This course will introduce topics of more advanced planning for radiation therapy. The student will participate in and demonstrate competency for complex IMRT planning, SBRT planning as well as planning for proton therapy. They will be introduced to newer brachytherapy procedures and will be assigned to clinical physics tasks.

11. Lecture Contact Hours: Fixed at ________ or Variable from ________ to ________

12. Non-Lecture Contact Hours: Fixed at ________ or Variable from ________ to ________

13. Estimated enrollment: ________ of which ________ percent are expected to be graduate students.

14. Frequency of scheduling: once/year  Will this course be required for majors? Yes, certificate program

15. Justification for new course: Establishment of new certificate program in medical dosimetry

16. Are the necessary reading materials currently available in the appropriate library? Yes

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:  

Department Chairman/Division Director  
Date 7/16/2009

Dean of Graduate School (when required)  
Date

Approved by:  

Dean  
Date 7/21/09

Chancellor/Vice-President  
Date

University Enrollment Services  
Date

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724  
University Enrollment Services Final— White; Chancellor/Vice-President—Blue; School/Division—Yellow;  
Department/Division—Pink; University Enrollment Services Advanced—White
NEW COURSE REQUEST

I. Title: Clinical Practicum III – Advanced Topics in Medical Dosimetry
   Course # : RAON-D703
   Course Director: Colleen DesRosiers, Ph.D.
   Course Coordinator/Instructor: Marvene M. Ewing, B.S., CMD
   Prerequisite: Clinical Practicum II – Intermediate Planning in Dosimetry

   Suggested Course Abbreviation: Clinical Practicum III Advanced
   Spring Semester 6 credit hours 48 days (7 hrs each) = 336 hours (20,160 minutes)

II. Course Description and Rationale
   This course will introduce topics of more advanced planning for radiation therapy. The student will participate in and demonstrate competency for complex IMRT planning, SBRT planning as well as planning for proton therapy. They will be introduced to newer brachytherapy procedures and will be assigned to clinical physics tasks.

   This rotation will take the student to multiple clinic sites that may include the Department of Radiation Oncology at Indiana University Hospital, the Department of Radiation Oncology at Methodist Hospital in Indianapolis, the Radiation Therapy Department at the Veteran’s Administration Hospital in Indianapolis, Arnett Clinic Radiation Therapy Department in Lafayette, Indiana and the Mid-West Proton Therapy Center in Bloomington, Indiana. Specific assignments will be made for each clinical site and the student will be expected to complete required competencies at each site. All competencies must be evaluated by a certified medical dosimetrist or by a medical physicist.

III. Educational Objectives
   Upon completion of this clinical rotation the student will be able to:

   1. Assess, evaluate and formulate priorities in daily clinical practice.
      Assessment: Written examination.

   2. Establish concepts of team practice that focus on organizational theories of goal setting, establishing priorities, roles of team members, and conflict resolution.
      Assessment: Written examination

   3. Apply and demonstrate the principles of radiation protection standards
      Assessment: Written examination.

   4. Demonstrate competency for complex IMRT planning, including head and neck sites, breast and multiphase prostate plans.
Assessment: Clinical competency. Under the direct supervision of a medical dosimetrist the student will construct IMRT plans for each site listed. The student will be able to set priorities, optimize, and evaluate dose volume histograms independently. The student will have the opportunity to observe at least two IMRT plans prior to being expected to successfully perform this competency (30% total grade).

5. Create an SBRT plan for lung or liver using the Elekta Body Frame and the Eclipse treatment planning system as well as with the Novalis System.

Assessment: Clinical competency. Under the direct supervision of a medical dosimetrist the student will construct a SBRT plan with the ECLIPSE and with the Novalis systems. The student will be able to produce a treatable plan on each system. The student will have the opportunity to observe at least two SBRT plans prior to being expected to successfully perform this competency (20% total grade).

6. Demonstrate competency for proton planning of the prostate.

Assessment: Clinical competency. Under the direct supervision of a medical dosimetrist the student will construct a prostate treatment plan using protons with the ECLIPSE system. The student will be able to produce a treatable plan. The student will have the opportunity to observe at least two proton beam plans prior to being expected to successfully perform this competency (10% total grade).

7. Assist with planning for less routine brachytherapy procedures such as mammosite, prostate and eye plaques. Applications may vary from student to student as patient procedures are scheduled.

Assessment: Clinical competency. Under the direct supervision of a medical physicist the student will be able to assist in the planning and treatment execution of at least one special procedure. The student will be able to answer questions pertaining to radiation safety and quality assurance for brachytherapy implant procedures. If the student completes more than one clinical competency for special brachytherapy procedures, the highest grade will count towards the final grade (5% total grade).

8. Complete competency requirements in clinical physics for machine calibrations.

Assessment: Clinical competency. Under the direct supervision of a medical physicist the student will be able to perform all of the steps required for a routine ion chamber calibration on a linear accelerator. (5% total grade)


Assessment: Clinical competency. Under the direct supervision of a medical physicist the student will produce a verification plan for an IMRT case and the student will perform the IMRT QA verification measurement. (5% total grade)
10. Complete competency requirements for data entry of the complex plan in the electronic medical record.

Assessment: Clinical competency. Under the direct supervision of a medical physicist or medical dosimetrist the student shall be able to prepare a completed treatment plan for treatment execution. (5% total grade)

IV. Course Content – Syllabus
The student will rotate through multiple clinical sites as assigned and will be supervised by a CMD or medical physicist. They will both observe planning by a professional and complete competency exams as assigned for complex radiation therapy plans.

1. Complex IMRT Planning
   a. Multi-phase Prostate Plan
   b. Head and Neck IMRT Planning
   c. Left Breast IMRT Planning

2. Stereotactic Radiotherapy Planning
   a. Using the Elekta frame, linear accelerator and Eclipse planning system for lung and liver
   b. Use of cone beam CT for setup verification
   c. Using Novalis and the Brain Lab planning system for cranial stereotactic treatment planning.
   d. Gamma knife cranial stereotactic procedures.

3. Proton Planning
   a. Prostate planning with protons
   b. Complex proton planning

4. Brachytherapy
   a. Prostate
   b. Mammosite
   c. Eye Plaque

5. Clinical Physics
   a. Daily and weekly checks on the treatment machine.
   b. Weekly calibration of the treatment machine.
   c. Quality assurance for therapy chart.
   d. Quality assurance for IMRT plans.

* Students may also be required to attend seminars or conferences at each clinical site, including but not exclusive to: Peer Review, Chart Rounds and Didactic lectures. No additional credit is given for attendance but a written report will be required from each conference that is attended.

V. Required and Recommended Texts
No required texts.
Suggested readings: see readings from Clinical Practicum I and Clinical Practicum II.

VI. Evaluation and Grading

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeds expectations</td>
<td>88-100%</td>
</tr>
<tr>
<td>Meets requirements</td>
<td>75-87.99%</td>
</tr>
<tr>
<td>Failing</td>
<td>&lt;75%</td>
</tr>
</tbody>
</table>

Successful completion of all clinical assignments will be evaluated using competency tests. Each competency test will be graded by the clinical instructor. The student will also be administered a written examination worth 20% of the final grade to reinforce and expand on knowledge gained in the successful completion of selected clinical competencies. Weighting of homework and individual competencies are given in the Educational Objectives section.

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The Indiana University grading scale will be applied.

A failure must be repeated and the student will be placed on probationary status. More than one failure of a specific task may result in termination from the program.

VII. Cheating and Plagiarism:

Students are instructed to make themselves aware of University regulations concerning plagiarism, the maintenance of academic honesty and the definitions of unacceptable behavior and cheating. Academic misconduct of any sort will not be tolerated and will be dealt with as outlined in the [IU/PUI Code of Student Rights, Responsibilities, and Conduct](http://www.iupui.edu/code/), which can be viewed at:

http://www.iupui.edu/code/

Examples of misconduct include but are not limited to:

1. Cheating
   A student must not use or attempt to use unauthorized assistance, materials, information, or study aids in any academic exercise.

2. Fabrication
   A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations to the sources of information.

3. Plagiarism
   A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge an indebtedness whenever he or she does any of the following:
   a. Quotes another person’s actual words, either oral or written.
b. Paraphrases another person’s words, either oral or written.
c. Uses another person’s idea, opinion, or theory, or
d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

4. Interference
   a. A student must not steal, change, destroy, or impede another student’s work.
   b. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Potential consequences for academic misconduct:

If the instructor has information that one of his/her students committed an act of academic misconduct, the faculty member will hold an informal conference with the student. The conference will be prompt and private. If the faculty member concludes that the student is responsible for the misconduct, then the faculty member will impose an appropriate academic sanction (i.e., lower or failing grade on the assignment, assessing a lower or failing grade for the course).

VIII. Americans with Disabilities Act:
If you need any special accommodations due to a disability, please contact Adaptive Educational Services at (317)-274-3241. The office is located in CA 001E.