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MAY 22 2013

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SENATE COUNCIL



UNIVERSITY OF KENTUCKY

MEMORANDUM

TO: Dr. Lee Blonder  
Senate Council Chair

FROM: Sharon Stewart *Sharon R. Stewart*  
Interim Dean, College of Health Sciences

DATE: May 21, 2013

RE: Proposal for Change in Academic Organization/Structure of an Educational Unit:  
Proposal to transfer the Radiological Medical Physics (RMP) MS program  
from the College of Health Sciences (CHS), Clinical Sciences Department (CS)  
to the College of Medicine (COM), Radiation Medicine Department (RM)

Digitally signed by Sharon Stewart  
DN: cn=Sharon Stewart, o=ou,  
email=stewart@uky.edu, c=US  
Date: 2013.05.21 13:16:46 -0400

I am submitting a proposal to transfer the Radiological Medical Physics program from the College of Health Sciences, Department of Clinical Sciences to the College of Medicine, Department of Radiation Medicine. This proposal includes documentation of support from faculty, Department Chairs, and Deans in both Colleges. Support from the Graduate School Dean is also attached.

This proposal was initiated by me (Sharon Stewart) in my role as the College of Health Sciences Interim Dean. I have followed the Senate Rule 3.4, consulted with Davy Jones in his role as on the Faculty Senate, consulted with the Senate Academic Organization and Structure Committee (approved routing form attached), and followed the Ad-Hoc Policy for Determining the Future of Academic Programs approved by the College of Health Sciences Faculty in 2010-2011 (attached).

*Where is this?*

As noted in a response to my email inquiry to Davy Jones (email attached), I understand that this proposal constitutes a change in organizational reporting, not a change in the academic content of the program. Matters of organizational reporting are considered to be administrative decisions into which the faculty and University Senate provide advisory input. Proposals pertaining to organizational reporting proceed directly from the originating College (College of Health Sciences) to the Senate Council.

The RMP MS program was initiated in 1968 and is a small, selective program noted for providing high quality didactic and clinical training. It has been fully accredited by the Commission on Accreditation of Medical Physics Educational Programs (CAMPEP) since 1998 and will not undergo the re-accreditation process until 2014.

Historically, the administrative structure has been atypical. For many years, program leadership (Program Director, DGS), the degree, and a portion of the required courses resided in the College of Health Sciences, whereas most faculty, coursework, practicum experiences, materials, and equipment resided in the College of Medicine. In 2008, discussions about the future of the program began as the field of medical physics evolved so that MS trained medical physicists were required to have a CAMPEP – approved residency experiences to sit for the ABR board examination beginning in 2014, and there was uncertainty about the role of a master’s degree graduate would have in preparing medical physicists.

Consequently, CAMPEP permitted the program to delay its site visit for one year while the CHS hired external consultants to decide how the program should best position itself for the future given the new CAMPEP requirement. The external review conducted in 2008 (attached) recommended that the program continue its MS degree program and seek to establish CAMPEP-approved residency opportunities. The program followed both of these recommendations, and the program was successfully re-accredited in 2009.

In FY 2010, the Program Director and DGS, Dr. Ralph Christensen, retired. As a CHS faculty member, his retirement meant that RMP program leadership no longer resided in the CHS. Drs. Janelle Molloy and Lee Johnson, in the RM Department, COM, assumed the roles of Program Director and DGS, respectively. Only one faculty member in the RMP program remained in the CHS: Dr. Tony Wolbarst.

A series of Agreements (attached) between the COM and CHS began in 2009 while the future of the RMP was being considered. These agreements have continued to the present date with the CHS providing financial support to the program in exchange for its willingness to provide administrative oversight of the program. These agreements also included support for Dr. Wolbarst’s position at 50% effort for his contributions to the COM through FY 2011, after which time the CHS assumed full responsibility for Dr. Wolbarst’s salary.

Dr. Wolbarst is now retiring, effective September 2013. With his retirement, there will be no RMP program faculty presence in the CHS. Maintaining the degree program in the CHS under such circumstances cannot be justified. Therefore, transfer of the RMP MS program along with all RAS courses presently housed in the CHS to the COM RM Department is proposed. There is no proposal to modify the academic program in any way. The curriculum, course sequence, admissions requirements, and every other aspect of the program will remain intact. It is anticipated that the transfer of the program will have *no* adverse affect on the RMP degree program, faculty, staff or students. In fact, the transfer is expected to strengthen the program by promoting continuity and placing the responsibility for the program in the RM Department, where the leadership, faculty expertise, equipment and other resources reside.

The attached documents provide details about the proposed transfer including present status of the program; the specific proposal for the transfer, including funding support, timing, disposition of all faculty, materials, equipment, and space; and evidence of consultation with all faculty and administrators impacted by the proposed transfer.

In my judgment, approval of this transfer will strengthen the RMP MS program. Please feel free to contact me regarding any concerns or questions.

**Senate-Approved Routing Form**  
**For**  
**Changes to Academic Organization or Structure of an Educational Unit**

*To be completed by Proposal Initiator:*

**I. Proposal Initiator:**

Contact Person: JHARON STEWART Email: srstew@duke.edu Phone: 218.0560  
Position/Relationship to Proposal (Dean, Chair, Director, etc.): Interim Dean, CHS  
Proposal Initiator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**II. Educational Unit(s) Principally Impacted by Proposed Change(s)** (check all that apply and identify specific unit(s)):

<i>Educational Unit</i>	<i>Name (e.g., College of, Department of)</i>
<input checked="" type="checkbox"/> Department	<u>Clinical Sciences; Radiation Medicine</u>
_____ School	_____
<input checked="" type="checkbox"/> College	<u>Health Sciences; Medicine</u>
_____ Graduate Center	_____
_____ Interdisciplinary Instructional Program	_____
_____ Multidisciplinary Research Center/Institute	_____

**III. Change Nature (check all that apply):**

**A.**

- \_\_\_\_\_ Change of Name of Educational Unit  
\_\_\_\_\_ Change of Type of Educational Unit (e.g., from department to school)
- 

**B.**

- \_\_\_\_\_ Creation of a new Educational Unit  
\_\_\_\_\_ Consolidation of Educational Units  
 Transfer of Academic Program to a different Educational Unit  
\_\_\_\_\_ Transfer of Educational Unit to a different reporting unit  
\_\_\_\_\_ Significant Reduction of Educational Unit  
\_\_\_\_\_ Discontinuation/Suspension/Closure of Educational Unit  
\_\_\_\_\_ Other (Please provide explanation below or in the proposal)

**Due Diligence Review Steps to be addressed by: Senate Academic Organization and Structure Committee (SAOSC)/Senate Council/University Senate**

**SAOSC Review (SAOSC Chair to check all appropriate steps in review process):**

**For III.A. Changes:**

- \_\_\_ SAOSC Review of Proposal
- \_\_\_ Recommendation of SAOSC Committee for Additional/Joint Review by/with other University Senate Committee(s) (e.g. Academic Program Committee)

**For III.B. Changes:**

- \_\_\_ Recommendation of SAOSC Committee for Additional/Joint Review by/with other University Senate Committee(s) (e.g. Academic Program Committee)
- \_\_\_ SAOSC Review of Considerations for Proposals for Creation, Consolidation, Transfer, Closure, Discontinuation, or Significant Reduction and Educational Unit, or Transfer and Academic Program to a Different Educational Unit (attach record and documentation)
- \_\_\_ Program Review in Past 3 years (attach documentation)
- \_\_\_ Request to Provost for new Program Review (attach documentation)
- \_\_\_ Open Hearing (attach documentation)
- \_\_\_ SAOSC information shared with unit 10 days prior to Hearing
- \_\_\_ Open Hearing Procedures

**Timeline of Proposal Review**

**Date/Initial**

- \_\_\_ Received by Senate Council Office
- \_\_\_ Received by SAOSC
- \_\_\_ Request made by SAOSC for Proposal Clarification and/or Additional Documentation
- \_\_\_ Receipt of SAOSC requested materials

**SAOSC Vote**

Proposal Recommendation: **Accept / Reject / Accept with Modification(s)**  
 Vote Tally: Yes \_\_\_\_\_ No \_\_\_\_\_ Abstain \_\_\_\_\_  
 Provide modification explanation/documentation in this package

**University Senate Council Vote**

Proposal Recommendation: **Accept / Reject / Accept with Modification(s)**  
 Vote Tally: Yes \_\_\_\_\_ No \_\_\_\_\_ Abstain \_\_\_\_\_  
 Provide modification explanation/documentation in this package

**University Senate Vote - Final Academic Decision**

Proposal Recommendation: **Accept / Reject / Accept with Modification(s)**  
 Vote Tally: Yes \_\_\_\_\_ No \_\_\_\_\_ Abstain \_\_\_\_\_  
 Provide modification explanation/documentation in this package

**University Senate Vote - Recommendation to the Provost**

Proposal Recommendation: **Accept / Reject / Accept with Modification(s)**  
 Vote Tally: Yes \_\_\_\_\_ No \_\_\_\_\_ Abstain \_\_\_\_\_  
 Provide modification explanation/documentation in this package



**Evidence of Compliance with Existing Unit/College/University Procedures for Faculty Advisement on Proposed Changes to Academic Organization and Structure of Educational Unit**

(S.R.3.4.2.1.5. available at [http://www.uky.edu/Faculty/Senate/rules\\_regulations/index.htm](http://www.uky.edu/Faculty/Senate/rules_regulations/index.htm))

Include in the proposal a statement and documentation by the initiator of the proposal that provides a full accounting of the following items (if applicable).

- **Disposition of faculty, staff and resources (financial and physical)** - *See details in the narrative*

**Faculty:** With the exception of Dr. Wolbarst's retirement, program leadership and faculty assigned to the program are not expected to change. Drs. Molloy and Johnson are expected to stay in their leadership positions as Program Director and Director of Graduate Studies, respectively. Teaching faculty will remain the same, with the exception of changes resulting from the upcoming retirement of Dr. Anthony Wolbarst, the only faculty member in the Clinical Sciences Department in the College of Health Sciences assigned to the RMP program. Until a new faculty member is hired, other qualified faculty will teach courses formerly taught by Dr. Wolbarst according to areas of expertise.

All faculty lines, with the exception of Dr. Wolbarst, are located in the COM. Faculty in these lines will continue their contributions to the RMP program. The CHS has not had a recurring faculty line assigned to this program since 2007. At that time, Dr. Christensen's line was given up in a recurring budget cut, and his salary was paid using non-recurring funds until his retirement. Dr. Wolbarst was employed using non-recurring funds, and half of his salary was paid by the COM until the end of FY 2011. At that time, the CHS picked up Dr. Wolbarst's entire salary, and his DOE allocated to instruction and research related to the RMP was at approximately 60% (\$95,621 of the total 159,369 in salary and fringes). Since there is no faculty line to contribute to the RMP program, the CHS will provide \$180,000 annually for two years to support a new faculty hire.

**Staff:** No changes in staff are expected; half-time staff support currently provided by the COM RM will remain in place.

**Financial and physical resources:** All courses associated with the program and owned by the CHS (RAS prefix) will be transferred to the COM. (Note: RM course prefixes are already located in the COM. With the implementation of a new budget model, tuition dollars that would have been allocated to the CHS for RAS courses will be transferred to the RMP in support of the program.)

As noted above, the CHS will provide \$180,000 annually to the COM RM for two years. The funds will be used by the RMP to hire a new faculty member who will provide instruction in the program and complete either duties (e.g., clinical services) as assigned. After two years and under the new financial model, it is expected that tuition dollars and other income sources (e.g., clinical practice or research support) will provide the necessary support for maintaining the position.

The CHS will pay for costs associated with moving paper files and other materials belonging to the RMP program from the Wethington Building to a space designated by the RM Dept according to a reasonable, agreed-upon schedule.

Physically, portions of the program are already located in the RM Department. Office space currently located in the CHS (1 closed office; 1 office cubicle) will be vacated, and similar space in the RM Department will be made available for the program.

- **Willingness of the donating units to release faculty lines for transfer to a different educational unit.** As noted above, all faculty lines, with the exception of Dr. Wolbarst, are located in the COM. The CHS has not had a recurring faculty line assigned to this program since 2007. At

that time, Dr. Christensen's line was given up in a recurring budget cut, and his salary was paid using non-recurring funds until his retirement. Dr. Wolbarst was employed using non-recurring funds, and half of his salary was paid by the COM until the end of FY 2011. At that time, the CHS picked up Dr. Wolbarst's entire salary, and his DOE allocated to instruction and research related to the RMP was at approximately 60% (\$95,621 of the total 159,369 in salary and fringes). Since there is no faculty line to contribute to the RMP program, the CHS will provide \$180,000 annually for two years to support a new faculty hire.

- **Consultation with the faculty of the unit to which the faculty lines are proposed to be transferred.** In addition to the RMP MS Program Graduate Faculty, faculty in the College of Medicine (COM) were consulted as follows: COM Radiation Medicine Department Faculty; COM Academic Affairs Committee, and COM Faculty Council. The vote to approve the proposal was unanimous in each instance. Details and copies of memos/emails attesting to the consultations are found in the proposal attachments.
- **Consultation with the faculty of educational unit that will be significantly reduced.** The College of Health Sciences, Department of Clinical Sciences will not suffer a significant reduction. As noted in the narrative, most faculty are already located in the Department of Radiation Medicine in the College of Medicine. Faculty in the College of Health Sciences (CHS) were consulted as follows: CHS Clinical Sciences Department Faculty, CHS Academic Affairs Committee, CHS Faculty Council, and CHS Faculty. The vote to approve the proposal was unanimous except for 1 vote cast against the proposal in the Clinical Sciences Department. Details and copies of memos/emails attesting to the consultations are found in the proposal attachments.
- **Summary of votes and viewpoints (including dissents) of unit faculty and department/college committees.** Except for one faculty member, faculty were supportive of the proposal. The single opposing vote was because the CHS faculty member did not want to lose a high-quality program, such as the RMP, to another college. Details of the votes by each faculty group/committee are found in the proposal attachments.
- **Ballots, votes expressing support for or against the proposal by unit faculty and staff and committees.** Specific information about faculty member and committee votes is attached. The CHS procedures adopted in 2010-2011 do not provide for input by staff, and no staff in the CHS are assigned to or would be affected by the RMP MS program. The same is true for the COM.
- **Letters of support or opposition from appropriate faculty and/or administrators.** In addition to memos and emails detailing the votes of various faculty bodies and committees, letters of support from Dean Jeannine Blackwell (Graduate School), Dean Fred De Beer (College of Medicine), and Interim Dean Sharon Stewart (College of Health Sciences) are located in the attachments.
- **Letters of support from outside the University.** We did not seek letters of support from outside the University. Support from faculty and administrators in the two colleges was nearly unanimous, and a review of the administrative location of similar accredited RMP programs around the nation revealed that the location of an RMP MS program in Medicine is not unusual.
- **Detailed responses to SAOSC Guidelines for Changes to Academic Organization and Structure for Educational Units.** A narrative explaining the existing program, the proposal, and its impact is provided along with the completed forms, supplementary materials, and details about the required consultations.

## RECORD OF CONSULTATIONS AND LETTERS OF SUPPORT

*As indicated in AR 3.4 and consistent with CHS policy, consultation was sought from a variety of faculty groups and administrators in the College of Health Sciences and the College of Medicine. Consultations are listed below and memos attesting to the consultations along with letters of support are attached.*

Consulted Group	Source	Date	Outcome
<i>Academic Program Consultation</i>			
Radiation Medical Physics MS Program Graduate Faculty	Recorded in 2/25 memo by Andreatta, CHS Acad Affairs Comm Chair	Feb 01, 2013	6 members voted in favor; 0 opposed; 0 abstained
<i>Originating College Consultations</i>			
College of Health Sciences, Clinical Sciences Department Faculty	Recorded in 2/25 Skaff & 2/25 Andreatta memos	Feb 25, 2013	15 in favor; 1 opposed; 0 abstained
College of Health Sciences Faculty Council	Recorded in 4/11 memo by Olson, CHS FC Chair	Mar 08, 2013	6 in favor; 0 opposed; 0 abstained
College of Health Sciences Academic Affairs Committee	Recorded in 2/25 Andreatta memo	Feb 25, 2013	6 in favor; 0 opposed; 0 abstained
College of Health Sciences Faculty	Recorded in 5/20 memo by Poole	April 26, 2013	29 in favor; 0 opposed; 0 abstained
<i>Receiving College Consultations</i>			
College of Medicine, Radiation Medicine Department Faculty	Recorded in 3/21 Randall memo & minutes	Feb 07, 2013	14 in favor; 0 opposed; 0 abstained
College of Medicine Academic Affairs Committee	Recorded in 4/16 AAC email	Apr 15, 2013	8 in favor; 0 opposed; 0 abstained (4 absent)
College of Medicine Faculty Council	Recorded in 5/09 FC email	Apr 26, 2013	12 in favor; 0 opposed; 0 abstained
<i>Administrator Support Letters</i>			
College of Health Sciences, Clinical Sciences Department Chair	Memo from Dr. Karen Skaff, CS Dept Chair	Feb 25, 2013	Supports proposal
College of Medicine, Radiation Medicine Department Chair	Memo from Dr. Marcus Randall, RM Dept Chair	Mar 21, 2013	Supports proposal
College of Medicine Dean	Memo from Dean Fred DeBeer	April 29, 2013	Supports proposal
Graduate School Dean	Memo from Dean Jeannine Blackwell	May 09, 2013	Supports proposal
College of Health Sciences Interim Dean	Introductory Memo from Interim Dean Sharon Stewart	May 21, 2013	Initiated & supports proposal



College of Health Sciences

Academic Affairs Committee  
120 Wethington Building  
Lexington, KY 40536-0200

February 25, 2013

**MEMORANDUM**

**To:** Sharon Stewart, Ed.D. – *Interim Dean of the College of Health Sciences*

**From:** Richard Andreatta, Ph.D. - *Chair – Academic Affairs Committee*

**RE:** Summary Votes from RAS Transfer Proposal Meetings.

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An advisory meeting was held on February 1, 2013 to discuss a proposal to transfer the Radiations Sciences Program (RAS) from the College of Health Sciences (CHS) to the Department of Radiation Medicine (RM) in the College of Medicine (COM). Attending the meeting were: Drs. Lee Johnson, Ulrich Langer, Wei Luo, Janelle Molloy, Jie Zhang, Sharon Stewart, & Richard Andreatta. After a brief overview of the transfer proposal by Interim Dean Stewart, the graduate faculty were offered the opportunity to ask questions and express any concerns regarding the content of transfer proposal. A vote was subsequently taken by the graduate faculty of RAS to gauge support or opposition to the transfer proposal. The vote count was: *6 In Favor, 0 Opposed, & 0 Abstained*. The CHS Academic Affairs committee was briefed on the details of the meeting and outcome.

A second advisory meeting was held on February 25, 2013 to discuss the proposal with faculty within the home department of the RAS program, the Dept. of Clinical Sciences (CS). After a brief presentation by Dr. Karen Skaff and follow-up discussion among the faculty, a motion was made to vote on the question of RAS transfer from CHS to Radiation Medicine in the COM. The motion was seconded and the vote conducted via secret ballot among the 15 voting-eligible CS faculty. The votes were tallied and counted by the dept's administrative assistant and myself. The vote count was: *14 In Favor, 1 Opposed, & 0 Abstained*.

The CHS AA committee has reviewed the transfer proposal and in light of the positive advisory votes to proceed with the administrative change, we recommend approval of the proposal to transfer RAS from the CHS to RM in the COM.

Sincerely,  
Richard Andreatta, PhD., *Chair, CHS Academic Affairs Committee*






College of Health Sciences

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MEMORANDUM

TO: Sharon Stewart, Ed.D.  
CHS Interim Dean and Professor

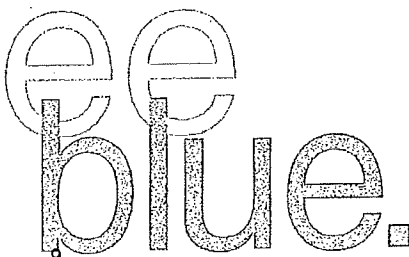
FROM: Anne Olson, Ph.D.   
CHS Faculty Council Chair and Associate Professor

DATE: April 11, 2013

This is to notify you that on March 8, 2013, the CHS Faculty Council voted to support the proposal to transfer the Radiological Medical Physics MS program from the College of Health Sciences, Clinical Sciences Department to the College of Medicine, Radiation Medicine Department.

In addition to explaining the rationale of the proposal and its anticipated impact on all stakeholders, you noted that the process is following university rules and the CHS ad-hoc policy developed a couple of years ago. We understand that the proposal still needs to be vetted by appropriate faculty groups in the College of Medicine before being forwarded from the CHS to the Senate.

After your presentation of the proposal, members were given the opportunity to ask questions or comment on the proposal. There were not questions or comments. Members were then provided the opportunity to vote by paper ballot or by raising hands. Members elected to vote by raising their hands. The vote in support of the proposal was unanimous, with all six members voting for the proposal (6 in support; 0 opposed; 0 abstained).




An Equal Opportunity University



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[www.uky.edu/HealthSciences](http://www.uky.edu/HealthSciences)

## Memorandum

**To:** Sharon Stewart, Ed.D  
Interim Dean, College of Health Sciences

**From:** Marie Poole   
Administrative Associate

**Date:** 5/21/2013

**Re:** Proposal to transfer the Radiation Medical Physics (RMP) MS Program

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The proposal to transfer the RMP MS program from the College of Health Sciences, Department of Clinical Sciences to the College of Medicine, Department of Radiation Medicine was voted on during the College of Health Sciences college meeting Friday, April 26<sup>th</sup>. Dr. Karen Skaff made the motion to support the proposal to transfer the program, and it was seconded. There was no discussion. All twenty-nine attending faculty members voted unanimously in support of the transfer.



College of Health Sciences

Department of Clinical Sciences  
Wethington Building, Room 209  
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859 323-1100 ext. 80513  
fax 859 257-2454

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MEMORANDUM

To: Sharon Stewart, Ed.D., Interim Dean  
College of Health Sciences

From: Karen O. Skaff, Ph.D., Chair  
Department of Clinical Sciences

A handwritten signature in blue ink, appearing to read "K. Skaff", written over the name in the "From:" field.

Subject: Proposal to Transfer the RAS Program in Medical Physics from the  
College of Health Sciences to the College of Medicine

Date: February 25, 2013

The full-time faculty in the Department of Clinical Sciences approved the Proposal to Transfer the graduate Program in Medical Physics in Radiation Sciences (RAS) in the College of Health Sciences to the Department of Radiation Medicine in the College of Medicine. During the regularly scheduled Department meeting on February 25, 2013, the Chair consulted with the faculty and a vote was taken on the Proposal. The RAS Program Director, Dr. Janelle Molloy and Dr. Richie Andreatta, Chairman of the College Academic Affairs Committee were also present.

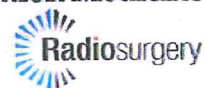
The Proposal to transfer the program was moved by Dr. Geza Bruckner and seconded by Dr. Linda Gorman and a paper ballot was used to collect the votes by Anna Moore, Administrative Assistant for the Department and Dr. Andrietta. The result of the vote was reported as 14 voted "YES" in favor of the transfer and one voted "No", with the Chair not voting and one absentee vote in the affirmative, for a total of 15 voting "Yes" in support of the Transfer, with no abstentions.

While the faculty shared some reservation about the Program leaving the College given its rich forty year history, they appreciated knowing that the College of Medicine is committed to its continued success.

On behalf of the Department, I lend my full support to the Proposal to Transfer the RAS Program from the Department of Clinical Sciences to the Department of Radiation Medicine in the College of Medicine.

Cc: Dr. Richie Andreatta, Chair  
CHS Academic Affairs Committee





University of Kentucky  
Chandler Medical Center  
Department of Radiation Medicine  
800 Rose Street  
Lexington, KY 40536-0293  
Phone: (859) 323-6486  
Fax: (859) 257-4931

### Physicians

**Marcus E. Randall, MD, FACR, FASTRO**

Markey Foundation Endowed Chair  
Professor & Chairman

**Ronald C. McGarry, MD, PhD**

Vice-Chair for Research  
Professor

Director of Body Radiosurgery Program

**William St. Clair, MD, PhD**

Professor  
Co-director of Gamma Knife  
Radiosurgery Program

**Maresh Kudrimoti, MD**

Associate Professor  
Vice-Chair for Clinical Operations  
Residency Program Director

**Pushpa Patel, MD**

Associate Professor

**Jonathan Feddock, MD**

Assistant Professor

**Robin Reams, MD**

Assistant Professor

Medical Director

Morehead Cancer Treatment Center

**Sandra L. Swayze, MD**

Assistant Professor

Morehead Cancer Treatment Center

**Pramod Prabhu, MD**

Assistant Professor

Medical Director

Maysville Cancer Treatment Center

### Physicists

**Janelle Molloy, PhD, FAAPM**

Associate Professor  
Director of Medical Physics

**E. Lee Johnson, PhD**

Associate Professor

**Wei Luo, PhD**

Assistant Professor

**Ulrich Langner, PhD**

Assistant Professor

**Prakash Aryal, MS**

Instructor

**Mike Sanders, MS**

Gamma Knife Physicist

### Cancer Research

**Vivek Rangnekar, PhD**

Professor

Alfred Cohen Chair in Oncology Research  
Associate Director of Translational Research,  
Markey Cancer Center

**William St. Clair, MD, PhD**

Associate Professor

March 21, 2013

Dear Dr. Stewart:

I write to indicate my strong support for the proposal to move the Medical Physics Graduate program from the College of Health Sciences (CHS) to the College of Medicine (COM). Following the transfer the program will be housed in the Department of Radiation Medicine. This educational program has a long-standing history and a national reputation for providing excellent clinical education.

Historically, the program has been a cooperative effort between the CHS and the COM. Much of the didactic coursework and administration were provided by the CHS, with the clinical training and some coursework provided by our department. Over the past 4 years, however, the entirety of the program administration and teaching has shifted to the COM. This evolution is based on the retirement of the 2 full-time faculty members previously supported by CHS.

The Radiation Medicine faculty met on February 7, 2013 and discussed the move to house the program in our department. There was unanimous support for proposal and the minutes of that meeting are attached.

I close by reiterating my personal support for the move. This program provides the academic identity for the Medical Physics group within our department, and is a source of pride for all.

Sincerely,

Marcus E. Randall, MD, FACR, FASTRO

Markey Cancer Center Endowed

Chair in Radiation Medicine

Professor and Chairman

Department of Radiation Medicine

[merand2@email.uky.edu](mailto:merand2@email.uky.edu)

phone (859) 257-7618

fax (859) 257-7483



## MINUTES

### Transfer of Medical Physics Graduate Program

February 7, 2013

- I. Review of History of Program which has been managed through the College of Health Sciences. The proposal is to transfer the program from CHS to the College of Medicine.

Dr. Molloy reviewed the history of the Radiation Medicine Medical Physics Graduate Program with a PowerPoint presentation. All Radiation Medicine faculty were present. Questions were raised and answered by Drs. Molloy and Randall. The group learned that Dean de Beer and other leaders of the UK HealthCare Enterprise are supportive of the transition. The plan is for an administrative only change at the current time. Students should notice no difference at all.

Potential downsides include revenue – any positive or negative balance will also be transferred. Potential fiscal evolution includes raising tuition for the program and applying for federal grant funding. It is estimated that a revised business plan for the program will be developed within the next six months.

- II. The group was asked to vote on the proposal and were given an opportunity to choose a secret ballot which was declined. All faculty voted in favor of the proposed transfer.

***Proposal: The faculty of the Department of Radiation support the move of the Medical Physics Graduate program from the College of Health Sciences, to the Department of Radiation Medicine in the College of Medicine***

In attendance: Marcus Randall, Janelle Molloy, Ronald McGarry, William St. Clair, Pushpa Patel, Mahesh Kudrimoti, Jonathan Feddock, Pramod Prabhu (by phone), Robin Reams (by phone), Ellis Johnson, Prakash Aryal, Wei Luo, Ulrich Langner, Mike Sanders

Recording: Sharlene Garnett

**From:** [Wilkeson, Melissa R](#)  
**To:** [Stewart, Sharon R](#)  
**Cc:** [Molloy, Janelle](#); [Johnson, Ellis](#)  
**Subject:** RE: Numbers from Curriculum Committee Vote  
**Date:** Tuesday, April 16, 2013 8:53:37 AM

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There are currently 12 voting members on the Curriculum Committee. Yesterday we had 4 people absent.

Melissa

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**From:** Stewart, Sharon R  
**Sent:** Tuesday, April 16, 2013 8:51 AM  
**To:** Wilkeson, Melissa R  
**Cc:** Molloy, Janelle; Johnson, Ellis  
**Subject:** RE: Numbers from Curriculum Committee Vote

Thanks so much. My other question would be – how many voting members are there all together on the Committee? I would like to report the number of members on the committee so we can report absences.

Thanks for your consideration of the proposed transfer.

Sharon

**Sharon R. Stewart, Ed.D.**  
*Interim Dean and Professor*  
University of Kentucky  
College of Health Sciences  
Charles T. Wethington, Jr. Building, Rm 123  
900 South Limestone  
Lexington, KY 40536-0200  
**Phone:** (859) 218-0480  
**Fax:** (859) 323-1058  
**Email:** [srstew01@uky.edu](mailto:srstew01@uky.edu)

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**From:** Wilkeson, Melissa R  
**Sent:** Tuesday, April 16, 2013 8:23 AM  
**To:** Stewart, Sharon R  
**Cc:** Molloy, Janelle; Johnson, Ellis  
**Subject:** Numbers from Curriculum Committee Vote

Hello Dr. Stewart,

It was a pleasure to meet you yesterday. You had asked that I send you the number of people that voted for the MS in Medical Physics program change at our Curriculum Committee meeting and there were 8 total votes which was the total amount of voting members present at yesterday's meeting. So I guess you could say it was unanimous.

Please let me know if you need anything else. Have a great day!

Melissa Wilkeson

Administrative Service Assistant  
University of Kentucky College of Medicine  
Office of Medical Education – Curriculum  
138 Leader Ave., Room 206  
Lexington, KY 40506  
859-257-5286

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**From:** [Lawson, Brandy](#)  
**To:** [Stewart, Sharon R](#)  
**Subject:** Transfer of Radiation Medical Physics MS Program (Sent on behalf of John D'Orazio, MD, PhD)  
**Date:** Thursday, May 09, 2013 8:18:48 AM  
**Attachments:** [image003.png](#)

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May 9, 2013

**To:** Sharon Stewart, Ed.D  
Interim Dean, College of Health Sciences

**From:** John D'Orazio, M.D., Ph.D.  
Chair, College of Medicine Faculty Council

**Re:** Transfer of Radiation Medical Physics MS Program

The proposal to transfer the Radiation Medical Physics MS program from the College of Health Sciences to the College of Medicine, Department of Radiation Medicine was circulated electronically to the College of Medicine Faculty Council on Friday, April 26. After reviewing this information, all twelve of the twelve voting members of the College of Medicine Faculty Council unanimously support this transfer.

Please let me know if you need any additional information.

**Brandy Lawson**

Chief of Staff  
University of Kentucky  
College of Medicine Dean's Office  
138 Leader Avenue, Room 244  
Lexington, KY 40506-9983  
Phone: 859-323-1367  
Fax: 859-323-2039  
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## MEMORANDUM

DATE: April 29, 2013

TO: Dr. Lee Blonder  
Senate Council Chair

Sharon R. Stewart  
Interim Dean, College of Health Sciences

FROM: Frederick C. de Beer, M.D.  
Dean, College of Medicine  
Vice President for Clinical Academic Affairs

RE: Proposal to transfer the Radiological Medical Physics MS program

I am sending this memorandum as evidence of my support for the proposal to transfer the Radiological Medical Physics (RMP) MS program from the Department of Clinical Sciences in the College of Health Sciences (CHS) to the Department of Radiation Medicine in the College of Medicine (COM).

The RMP MS program has provided excellent didactic and clinical training since it was initiated in 1968. The program is fully accredited by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP) and is not due for another review until 2014. The number of applicants far exceeds its present capacity (about 150 applicants for 6-8 positions), and the students are of high quality. We have responded to the new requirement that graduates complete a 2-year CAMPEP-approved residency in order to sit for the board examination by establishing our own residency program and by obtaining agreements with other agencies. We anticipate being able to accommodate our graduates and, to date, all graduates have obtained residencies.


Since its inception, the program has been offered by the CHS in collaboration with the COM. Over the years, the leadership, resources and responsibility for the program have transitioned to the COM. The two colleges presently have an agreement requiring the CHS to pay the COM in return for its leadership, oversight and management of the curriculum and students, and provision of most of the instructional/clinical experiences for students.

When the CHS Interim Dean approached me with the idea of transferring the program to the COM, I was supportive. I understand that the support of program faculty and other faculty in both colleges is robust. I remain supportive of the proposal and hope that we can implement this expeditiously.

MEMORANDUM

DATE: May 6, 2013

TO: Dr. Lee Blonder  
Senate Council Chair

FROM: Jeannine Blackwell   
Dean, The Graduate School

RE: Proposal to transfer the Radiological Medical Physics MS program

The purpose of this memorandum is to provide my support for the proposal to transfer the Radiological Medical Physics (RMP) MS program from the Department of Clinical Sciences in the College of Health Sciences (CHS) to the Department of Radiation Medicine in the College of Medicine (COM).

The RMP MS program was initiated in 1968 and has provided excellent didactic and clinical training for nearly 200 graduates for 45 years. The program is fully accredited by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP). The program is considered among the best in the nation, and the number of applicants continues to be robust, students entering the program are well prepared, and graduates continue to obtain positions and/or residencies either before or shortly after earning their MS degrees.

The program has been offered by the CHS in collaboration with the COM. Over the years, the leadership and responsibility for the program has gradually shifted to the COM. In recent years, the CHS and COM have had an agreement whereby the Radiation Sciences Department in the COM has provided the leadership (program director, director of graduate studies), the curriculum expertise, and most of the instruction and practicum experiences in return for payment by the CHS. With the upcoming retirement of Dr. Tony Wolbarst, and employee of the CHS, no faculty member in the CHS will have a teaching assignment or a leadership position pertaining to the RMP.

The role and services offered to the RMP MS program by the Graduate School will remain in place following any transfer. I understand that the CHS Interim Dean made the proposal and that faculty in the COM and CHS have been properly consulted. Support has been nearly unanimous, including support by faculty in the RMP program. I believe this proposed transfer to be in the best interest of the RMP program and that it will have no negative effect on the program, students, or faculty.

## **Proposal for Change in Academic Organization/Structure**

### **Proposal to transfer the *Radiological Medical Physics (RMP) MS degree program* from the College of Health Sciences, Department of Clinical Sciences to the College of Medicine, Department of Radiation Medicine**

This proposal details a plan for a change in the administrative structure of the *Radiological Medical Physics (RMP) master's degree* program. Specifically, the proposal describes a transfer of the RMP MS program from the College of Health Sciences (CHS), Department of Clinical Sciences (CS) to the College of Medicine (COM), Department of Radiation Medicine (RM). It is anticipated that the transfer of the program will have *no* adverse affect on the RMP degree program, faculty, staff or students. In fact, the transfer is expected to strengthen the program by promoting continuity and placing the responsibility for the program in the RM Department, where the leadership, faculty expertise, equipment and other resources reside.

#### **Program Description**

The RMP master's degree program was initiated in 1968 and is considered one of the premier clinical medical physics programs in North America. It is a small, selective program noted for providing high quality didactic and clinical training. As described on the website (<http://www.mc.uky.edu/healthsciences/radsci/index.html>), the program provides students a thorough didactic grounding in fundamental and specialized medical physics, with hands-on experience using state-of-the-art equipment. It is recognized for its strong clinical focus and offers an in-house residency for selected graduates of the UK program. In 1998, it was fully accredited by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP) and was reaccredited in 2002 and 2009 (certificate attached). The next re-accreditation self-study is due in 2014 with the site visit scheduled for 2015.

The goal of the program is to produce graduates who are competent professionals capable of assuming appropriate responsibilities in the clinical practice of therapeutic medical physics. Over the years, the program has graduated approximately 175 individuals, averaging 6-8 graduates per year since 2004. Graduates perform very well on certification examinations offered by the American Board of Radiology and many are highly respected in the field with two serving as Presidents of the American Association of Physicists in Medicine (AAPM) and others assuming important positions of responsibility, such as President of CAMPEP. Although the job market has been somewhat tight in recent years, graduates continue to locate employment or residencies prior to or shortly after graduation. During the past few years, students have been seeking residencies after completing the RMP degree, and all 8 students graduating in spring 2012 were accepted into residency programs prior to graduation.

The RMP program offers a Plan B, nonthesis, clinically-oriented terminal master's degree. In addition, a CAMPEP-accredited residency program in Radiation Therapy Physics is available that preferentially accepts RMP graduates. Students are enrolled beginning in the fall term for a program

requiring completion of a 30 credit hour didactic core and a 6 credit hour clinical practicum. Students also take at least 3 credit hours of electives, and program faculty may require additional prerequisite courses depending on student preparation. Although a thesis is not required, there is a two credit hour clinical research requirement that is part of the didactic core and an oral comprehensive examination. Unless students are delayed in completing their clinical practicum requirements or have several additional course requirements, they typically complete the program in 5 semesters (fall, spring, summer, fall, spring). A sample academic plan is shown below:

### Sample Academic Plan

Course	Title	Credit Hours
<b>Fall I:</b> RM/PHY 472G RAS/RM/PHY 546 RM 740 (ANA 209 or other missing Prerequisite)	Interaction of Radiation with Matter General Medical Radiological Physics Mammalian Radiation Biology (Prereq)	3 3 2 3 <b>11 Total</b>
<b>Spring I:</b> RAS/RM 601 RAS/RM 647 RAS/RM649 RM 660 RAS 710	Advanced Radiation Dosimetry Physics of Diagnostic Imaging I Physics of Radiation Therapy Graduate Practicum in Radiation Medicine Radiation Sciences Seminar	2 3 3 1 1 <b>10 Total</b>
<b>Summer I:</b> RM 660(1) (Missing prerequisite)	Graduate Practicum in Radiation Medicine (Prereq)	1 3 <b>4 Total</b>
<b>Fall II:</b> PHY 402G RAS/RM 648 RAS 651 RM 660 RM 695	Electronic Instrumentation & Measurements Physics of Diagnostic Imaging II Advanced Laboratory in Diagnostic Imaging Physics Graduate Practicum in Radiation Medicine Research in the Health-Related Radiation Sciences	3 3 2 2 1 <b>11 Total</b>
<b>Spring II:</b> RAS/RM/PHY 545 RM 660 RM 695 RM 842 - Elective RAS/RM 650 - Elective	Radiation Hazards & Protection Graduate Practicum in Radiation Medicine Research in the Health-Related Radiation Sciences Radiation Oncology Physics of Radiation TherapyII: Brachytherapy Physics	3 2 1 1 2 <b>9 Total</b>



## Present Administrative Structure and Resources

**Administrative Structure.** The RMP MS program presently resides administratively in the Clinical Sciences (CS) Department, College of Health Sciences (CHS). Dr. Karen Skaff serves as the CS Department Chair. The RMP program is led by the Program Director, Dr. Janelle Molloy, and the Director of Graduate Students, Dr. Ellis Johnson.

The CS Department is one of two Departments in the CHS. In addition to the RMP program, four degree programs reside in the CS Department: the Medical Laboratory Science, Clinical Leadership and Management, and Human Health Sciences baccalaureate degree programs and the Physician Assistant Studies master's degree program. The program uses follows CHS processes for governance, curricular changes, assistance with financial transactions, scheduling courses and classrooms, student issues other than those managed by the Graduate School, website, and other routine matters.

**Personnel.** Half-time staff support is provided by Ms. Allie Jones from the COM RM Department. Although the RMP master's program is located in the CHS, program faculty leadership (Drs. Molloy and Johnson) have primary appointments in the COM RM Department. They are full members of the RMP graduate faculty along with Drs. Jie Zhang and Dr. Tony Wolbarst. There are also two RMP associate graduate faculty members (Drs. Langner Ulrich and Luo Wei). In addition to the members of the graduate faculty, there are seven faculty, including the Chair of the Radiation Medicine Department, Dr. Randall Marcus, who regularly assist with teaching and graduate practicum experiences. Of the 13 total faculty, only one faculty member, Dr. Tony Wolbarst, has a primary appointment in the CHS, and he is retiring. With the retirement of Dr. Wolbarst, there will be no faculty housed in the CHS with a faculty appointment or designated responsibilities in the RMP program. Other than Dr. Wolbarst, all contributing faculty have appointments in the COM. Details concerning faculty are shown in the table below.

### Program Faculty

Name	College/Dept	Title Series/Rank
Janelle Molloy, Ph.D., Program Director	COM, RM, Director of Physics	Tenure/Associate Professor
Ellis (Lee) Johnson, Ph.D, Director of Graduate Studies	COM, RM	Clinical/Associate Professor
Ulrich Langner, Ph.D.	COM, RM	Clinical/Assistant Professor
Wei Luo, Ph.D.	COM, RM	Clinical /Assistant Professor
<i>Anthony Wolbarst, Ph.D.</i>	<i>CHS, CS</i>	<i>Tenure/Associate Professor</i>
Jie Zhang, Ph.D.	COM, Radiology	Clinical/Associate Professor
Peter Hardy, Ph.D.	COM, Radiology	Research/ Assistant Professor
Mahesh Kudrimati, M.D.	COM, RM	Clinical/Associate Professor
Pushpa Patel, M.D.	COM, RM	Tenure, Associate Professor
Randall Marcus, M.D.	COM, RM Department Chair	Tenure/Professor
William St. Clair, M.D.	COM, RM	Tenure/Professor
Travis Painter, M.S.	COM, RM	Part-time/Assistant Professor
Prakash Aryal, M.S.	COM, RM	Clinical/Instructor

The required courses in the RMP curriculum and associated faculty are shown in the table below.

### RMP Courses and Instructors

Course Prefix/Number	Course Title	Credit Hrs	Instructor
PHY 402G	Electronic Instrumentation & Measurements	3	Physics Dept, A&S
RAS 472G	Interaction of Radiation with Matter	3	Johnson/Wolbarst
RAS 545	Radiation Hazards & Protection	3	Wolbarst
RAS 546	General Medical Radiological Physics	3	Johnson/Wolbarst
RM 601	Advanced Radiation Dosimetry	2	Johnson
RAS 647	Physics of diagnostic Imaging I	3	Zhang
RAS 648	Physics of Diagnostic Imaging II	3	Johnson/Wolbarst
RM 649	Physics of Radiation Therapy	3	Johnson
RAS 651	Advanced Laboratory in Diagnostic Imaging Physics	2	Painter
RM 695	Research in the Health-Related Radiation Sciences	2	Johnson/Molloy
RM 710	Radiation Science Seminar	1	Molloy
RM 740	Mammalian Radiation Biology	2	St. Clair
RM 650	Brachytherapy Physics	2	Luo
RM 842	Radiation Oncology	1	St. Clair
RM 660	Graduate Practicum Radiation Medicine	6	Johnson/Molloy

**Facilities and Equipment.** The RMP program maintains a private office for the DGS (Ellis), an office cubicle for the part-time staff member, and a laboratory space for instruction on the second floor of the Wethington Building in CHS space. The office spaces have room for student records and other program materials. The laboratory space contains some equipment used for instruction, but the program recently decided to give up that space because the equipment is outdated and is no longer useful. The program also uses classroom space in the Wethington Building and in RM space in the Markey Cancer Center. Faculty members have offices in their Department; Dr. Wolbarst is the only faculty member with a permanent office in the Wethington Building. With his retirement, his office is to be reallocated. Modern equipment and facilities are located in Markey where students complete their practicum experiences.

**Financial resources.** The HHS and the COM RM Department operate under a cooperative agreement to offer the RMP MS program (See Appendix) During FY12 and FY13, the CHS and COM have operated according to the following Memorandum of Agreement:

1. CHS pays Dr. Wolbarst's salary (\$126,344) and benefits (\$33,025) \$159,369  
*(Through FY 2011, the COM paid 50% of Dr. Wolbarst's salary for teaching physics content to residents and other activities as assigned. Upon termination of this agreement, the CHS assumed responsibility for Dr. Wolbarst's total salary.)*
2. CHS pays the COM RM to administer & offer the RMP program \$130,000  
*(After the retirement of Dr. Christensen, CHS faculty member and MP Program Director and DGS, the COM RM took responsibility for administration of the program. Beginning in January 2010, the CHS paid \$130,000 annually to the COM RM to support program administration.)*

## Proposed Change in Administrative Structure

This document describes a proposed transfer of the RMP programs from the College of Health Sciences (CHS), Department of Clinical Sciences (CS) to the College of Medicine (COM), Department of Radiation Medicine (RM). It is anticipated that the program transfer will have *no* adverse affect on the RMP degree program, faculty, staff or students. In fact, the transfer is expected to strengthen the program by promoting continuity and placing the responsibility for the program in the RM Department, where the leadership, faculty expertise, equipment and other resources reside.

The Department of Radiation Medicine provides educational, clinical, and research services (<http://www.mc.uky.edu/radiationmedicine/aboutus.asp>). Dr. Marcus Randall serves as the Department Chair. On its website, the Department describes the RMP master's program and the medical physics residency and medical residency opportunities. With the exception of one faculty member, the Department has been offering the RMP program for many years under a cooperative agreement with the CHS.

During the period while the transfer proposal is under consideration, the cooperative agreement described previously will remain in force. The timing of key events is essential to a smooth transition; therefore, the CHS and COM already are working to ensure that the program transfer will be as seamless as possible. To that end, personnel in the colleges are in conversation on at least a weekly basis to discuss next steps and develop action plans. Meetings are also being held between administrators/staff in the two colleges (business officers, student affairs, IT, etc.) to discuss services that will be offered by the COM following the proposed transfer, such as student services, course and curriculum change processes, support for accreditation, and transfer of the program website. Discussions with the Dean of the Graduate School will be held regarding the transfer of graduate faculty from the CHS to the COM and communicating with alumni, students, and the university community about the transfer. Finally, we have also been in consultation with the Senate Council about the transfer process.

The intent is to implement the transfer in a seamless process that provides the financial and administrative resources necessary to maintain the program and promote a successful transition. With that in mind, the transfer agreement will be put into operation beginning the first January or July following approval as follows:

- The RMP MS degree program will be transferred from the CHS to the COM
- All courses associated with the program and owned by the CHS (RAS prefix) will transferred to the COM. (Note: RM course prefixes are already located in the COM. With the implementation of a new budget model, tuition dollars that would have been allocated to the CHS for RAS courses will be transferred to the RMP in support of the program.)
- For a period of two years, the CHS will provide \$180,000 annually to the COM RM. It is expected that the funds will be used to hire a new faculty member who will provide instruction in the program and complete either duties (e.g., clinical services) as assigned. After two years and under the new financial model, it is expected that tuition dollars and other income sources (e.g., clinical practice or research support) will provide the necessary support for maintaining the position.
- The CHS will pay for costs associated with moving paper files and other materials belonging to the RMP program from the Wethington Building to a space designated by the RM Dept according to a reasonable, agreed-upon schedule.

***Disposition of faculty, staff and resources.*** With the exception of Dr. Wolbarst's retirement, program leadership and faculty assigned to the program are not expected to change. Drs. Molloy and Johnson are expected to stay in their leadership positions as Program Director and Director of Graduate Studies, respectively. Teaching faculty will remain the same, with the exception of changes resulting from the upcoming retirement of Dr. Anthony Wolbarst, the only faculty member in the Clinical Sciences Department in the College of Health Sciences assigned to the RMP program. Until a new faculty member is hired, other qualified faculty will teach courses formerly taught by Dr. Wolbarst according to their areas of expertise.

The COM RM Department requested temporary funding to support hiring a new faculty member, and the CHS will provide \$180,000 for two years to meet that request as described in the agreement above. The COM RM has indicated its intention to begin a faculty search upon approval of the transfer.

No changes in staff are expected; half-time staff support currently provided by the COM RM will remain in place.

Physically, portions of the program are already located in the RM Department. Office space currently located in the CHS (1 closed office; 1 office cubicle) will be vacated, and similar space in the RM Department will be made available for the program.

***Faculty lines.*** All faculty lines, with the exception of Dr. Wolbarst, are located in the COM. Faculty in these lines will continue their contributions to the RMP program. The CHS has had not recurring faculty line assigned to this program since 2007. At that time, Dr. Christensen's line was given up in a recurring budget cut, and his salary was paid using non-recurring funds until his retirement. Dr. Wolbarst was employed using non-recurring funds, and half of his salary was paid by the COM until the end of FY 2011. At that time, the CHS picked up Dr. Wolbarst's entire salary, and his DOE allocated to instruction and research related to the RMP was at approximately 60% (\$95,621 of the total 159,369 in salary and fringes).

Since there is no faculty line to contribute to the RMP program, the CHS will provide \$180,000 annually for two years to support a new faculty hire and will transfer all CHS courses associated with the program (RAS prefix) along with the degree program to the COM RM Department. The combination of the financial contribution and expected income tuition dollars for all RAS and RM courses under the new financial model will be used to support the RMP program, including personnel.

***Impact on the RMP program and students.*** The program offered will not change as a result of the transfer, nor will the faculty (other than the retired CHS faculty member), curriculum, physical facilities, or tuition. Consequently, neither the quality of education nor its competitiveness is expected to be impacted.

After the RMP program is transferred, Drs. Molloy and Johnson are expected to stay in their leadership positions as Program Director and Director of Graduate Studies, respectively. Teaching faculty will remain the same, with the exception of changes resulting from the upcoming retirement of Dr. Anthony Wolbarst, the only faculty member in the CHS assigned to the RMP program.



The proposal is for an administrative change only; there is no proposal to alter the academic program. The location of the program in the COM RM is appropriate based on benchmarks and should create no professional accreditation issue. Of the 37 CAMPEP accredited graduate programs in medical physics in the U.S. and Canada, more than 10 are located in schools of medicine, cancer centers and hospitals. There is no anticipated negative outcome relative to regional accreditation (SACS).

The new structure is expected to have no negative impact on student recruitment. The program is highly competitive, with about 50 students competing for the program's six openings per year. As part of the commitment to make the transfer seamless, we are making arrangements to make Radiation Medicine the 'home' website for the program with admissions and enrollment managed by the College of Medicine once the transfer is approved. An announcement and link from the CHS to the program will be posted until the program judges that it is no longer needed. (At present, CHS is home to the program website with a link from RM). Interested students will continue to apply through the graduate school, and the selection process will remain the responsibility of the RMP faculty as it has in the past.

The impact on students already enrolled in the program should be seamless. The curriculum will not change. Courses will continue to be taught on the present schedule. Faculty advising and teaching will occur as before with the exception of the courses formerly taught by Dr. Wolbarst. Until a new faculty member is hired, other qualified faculty will teach courses formerly taught by Dr. Wolbarst according to their areas of expertise. Students will remain enrolled in the RMP program, and the degree name and designation will remain the same. The only change is that the degree program will be housed in the COM instead of the CHS.

COLLEGE OF HEALTH SCIENCES  
AND  
COLLEGE OF MEDICINE

MEMORANDUM OF AGREEMENT  
FOR  
RADIATION SCIENCES (RADIOLOGICAL MEDICAL PHYSICS) MS  
PROGRAM

(WITH ATTACHMENTS)

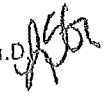


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March 9, 2010

MEMORANDUM:

TO: Pete Gilbert  
Associate Dean for Administration and Finance  
College Of Medicine

FROM: Lori S. Gonzalez, Ph.D.   
Dean  
College of Health Sciences

SUBJECT: Radiation Sciences Program

In 2007, Dr. Perman and I signed a collaborative agreement between the Department of Radiation and the College of Health Sciences. This agreement provided funding from the College of Medicine for Dr. Anthony Wolbarst a diagnostic imaging physicist and a faculty member in the Division of Radiation Sciences in the College of Health Sciences. This agreement was for two years but was extended to three years through 2009-2010. The College Of Medicine agreed to fund half of Dr. Wolbarst's salary and benefits during that three year period.

As part of the salary supplement, Dr. Wolbarst agreed to provide the following services to the College of Medicine:

- Teach physics content to residents
- Other activities as determined

In the fall of 2009, the College of Health Sciences and Department of Radiation met regarding the future of the Radiation Sciences Program. The field of medical physics is changing and new requirements will be in place for graduates after 2014. The College of Health Sciences agreed to continue to admit students to the Radiation Sciences Program and the Department of Radiation agreed to provide

administrative oversight for the program, including recruitment of students, planning the curriculum and other administrative tasks.

The College of Health Sciences agreed to transfer \$65,000 for 2009-2010 and \$130,000 for 2010-2011 to cover the cost of administering the program.

The current agreement does not cover Dr. Wolbarst's salary. Since Dr. Wolbarst will continue his teaching duties for the residents I am respectfully requesting that half of his salary and benefits continue to be covered for the year of 2010-2011. Dr. Wolbarst's estimated full salary and benefits for 2010-2011 is approximately \$159,369.00 (\$135,039 salary plus \$42,310 benefits). The College of Health Sciences and Radiation Medicine will review the feasibility of this continued relationship each January. With the retirement of the long term division director Dr. Ralph Christensen, this collaboration is both beneficial to the College of Medicine and the College of Health Sciences. Please let me know if I can provide additional information. I have attached copies of both agreements for your review. Thank you.

vrp/lsg

Attachments



Agreement between the College of Health Sciences and the College of Medicine  
Department of Radiation Medicine  
Regarding the  
Radiation Sciences Master's Program

The Radiation Sciences (RS) Master's Program is offered through the College of Health Sciences in collaboration with the Department of Radiation Medicine in the College of Medicine (COM). Since its inception, there has been a long and successful relationship between the two programs. The field of medical physics is changing and new requirements will be in place for graduates after 2014. CHS is unsure what the ultimate role of a master's degree graduate will have in preparing medical physicists.


In the interim, the College of Health Sciences agrees to continue to admit students to the program. The College of Medicine Department of Radiation Medicine agrees to provide administrative oversight for the program. Dr. Janelle Malloy (Radiation Medicine) will administer the program including: recruitment and admission of students, planning and offering the curriculum, and completing required administrative tasks.

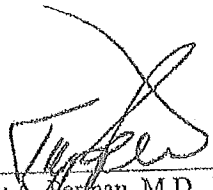
On January 1, 2010, the College of Health Sciences will transfer \$65,000 to the COM Department of Radiation Medicine to cover the cost of administering the Radiation Science Program through June 30, 2010.

On July 1, 2010, the College of Health Sciences will transfer \$130,000 to the COM Department of Radiation Medicine to cover the cost of administering the Radiation Science Program for the 2010-2011 academic year.

The agreement will be reviewed each January to determine the feasibility of the continued financial relationship. Both parties agree that it will continue until the last admitted group of students completes the program.

Approved:

  
\_\_\_\_\_  
Lori S. Gonzalez, Ph.D., Dean  
College of Health Sciences 1-22-10

  
\_\_\_\_\_  
Jay A. Gorman, M.D., Dean  
College of Medicine

**University of Kentucky**

**Agreement between  
the College of Health Sciences and the College of Medicine  
Regarding the Radiation Sciences Master's Program**

The Radiation Sciences Master's Program is offered through the College of Health Sciences in collaboration with the Department of Radiation Medicine in the College of Medicine. Since its inception in 1998, there has been a long and successful relationship between the two programs. Recently, there has been some discussion about the future of the Radiation Sciences Program and differing levels of support about whether or not to continue the program. After conversations between the Provost and the Deans of Health Sciences and Medicine, the following items have been agreed upon to allow continuation of the program through at least 2010.

The College of Health Sciences agrees to admit a cohort of students for the 2010 class of the Master's Program in Radiation Sciences.

The College also agrees to hire Dr. Robert Zwicker for 50% time during the 2009-2010 academic year. He will serve as director of the division.

The College of Medicine agrees to pay one-half of the salary and benefits for Dr. Anthony Wolbarst, a diagnostic imaging physicist and a faculty member in the Division of Radiation Sciences in the College of Health Sciences. Dr. Wolbarst's salary for 2008-2009 will be \$159,369 (\$135,059 salary plus \$42,310 benefits).

As part of this salary supplement, Dr. Wolbarst will provide the following services to the College of Medicine:

- Teach physics content to residents
- Other activities as determined

In the fall of 2009, the College of Health Sciences will hire external consultants to provide input on the disposition of the program. Faculty in the Department of Radiation Medicine, College of Medicine will be part of the review process.

Approved:

---

Lori S. Gonzalez, Ph.D., Dean  
College of Health Sciences

---

Jay A. Perman, M.D., Dean  
College of Medicine

CAMPEP ACCREDITATION  
AND  
EXTERNAL PROGRAM REVIEWS

Accreditation Self-Study (May, 2008)

*The program self-study and application for Re-Accreditation was submitted to CAMPEP. A decision was made to delay the site visit scheduled for fall 2008 in order to provide time for the program to decide how best to position itself for the future given the need for MS trained medical physicists to complete a CAMPEP-approved residency experience beginning 2014.*

External Program Review (December 2008)

*An external review was conducted by four experts in radiological medical physics education. The reviewers recommended that the program continue the MS program and not pursue a clinical doctorate. The reviewers also recommended the establishment of a CAMPEP-approved residency program. Additional recommendations can be found in the document.*

Accreditation Annual Report & Accreditation Update (May 2009)

*An update was provided in anticipation of the CAMPEP site visit. The update noted that the recommendations made by the External Program Review Committee were being implemented. The residency program was prepared for implementation in July, 2009. The program director, Dr. Ralph Christensen, was scheduled to begin a phased retirement beginning July 2009.*

Accreditation Annual Report (for the 2010 calendar year)

*Annual reports are required annually by CAMPEP. Submitted by the new Program Director, Dr. Janelle Molloy, the report confirmed that the program remained competitive, with a number of highly qualified students applying for 6 positions. Students completed the program successfully and found employment or entered a residency program before or shortly after graduation. Additional details are found in the report.*

Accreditation Annual Report (for the 2011 calendar year)

*The format and content of this report was similar to the 2010 report, indicating the stability of the program and a successful transition to the expectation that students be competitive for residency programs following graduation from the MS degree program.*



## MEMORANDUM

**DATE:** 28 May 2008

**TO:** CAMPEP Graduate Education Program Review Committee Members

**FROM:** Ralph Christensen, Ph.D., Director  
Program in Radiation Science, M.S. in Radiological Medical Physics option  
University of Kentucky Medical Center

**RE:** Enclosed Self-Study and Application for Re-Accreditation

**Division of Radiation Sciences**  
**College of Health Sciences**  
900 S. Limestone  
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The Program in Radiation Science, M.S. in Radiological Medical Physics option, which was fully accredited by CAMPEP's GEPRC in August 1998, and granted re-accreditation in late 2002, is applying for re-accreditation. Our \$5,000 check has been submitted and was cashed in early May. Our program faculty are in the throes of deciding in which direction this program should evolve. Dr. Christensen serves on the new AAPM working group investigating the implications of establishing professional doctorates in medical physics, and it is becoming very clear that the 2014 ABR rule change likely will quickly undercut the desirability of M.S. degrees in medical physics, as viewed by baccalaureate physics graduates. So our local decision-making centers around whether to retain the M.S. option, go for the professional doctorate (probably in conjunction with nearby existing residency programs, which can provide residency experience for some of the professional doctorate students), use a combination of the two, short-term, or consider other options. We have deliberately delayed making that decision until the arrival and settling-in of our new Director of Physics in Radiation Medicine, Janelle Molloy, Ph.D., who comes to us from Mayo Clinic and will fill the opening left by the retirement of Dr. Robert Zwicker at the end of January this year. Dr. Molloy will be arriving in mid-June. Dr. Christensen will retire in Summer 2009, and for the 2009-10 academic year the academic administrative tasks currently handled by Dr. Christensen will be performed on a part-time basis by Dr. Zwicker (coming out of full-time retirement). Depending on the decisions made by our faculty this fall, 2008-09 recruitment for Dr. Christensen's position will focus on someone who best fits a professional doctorate, a combination M.S. – professional doctorate, or whatever alternate track is chosen. Meanwhile, a full class for the M.S. degree has been recruited to enter in Fall 2008.

Since the 2002 renewal of accreditation, this program has experienced the following events:

- From 2002 – 2007, we had 34 graduates, all but two of whom began good placements no later than 1-2 months post graduating (most had committed to positions prior to graduating, particularly in the earlier years).
- Teaching faculty lines have been fairly stable; Krishna Komanduri, who contributed to our student practicum instruction, departed in 2002. Guy Simmons, PhD, stepped down from his part-time diagnostic radiological teaching activities in mid-2006 and was replaced full-time by Anthony Wolbarst, Ph.D., associate professor, who has written one of the texts in the field and is triply Board-certified, and by Travis Painter, M.S., a part-time assistant professor who is Board-certified in Diagnostic Radiological Physics and who teaches most of our imaging laboratory experiences. In January 2008 Robert Zwicker, Ph.D., a professor (joint) in our program, Director of Physics for the Department of Radiation Medicine, and clinical director of our student practicum, retired; he will be replaced in June 2008 in both administrative and teaching roles by Janelle Molloy, Ph.D., Associate Professor, who comes to UK from Mayo Clinic.
- In 2005, the Chair of Radiation Medicine departed; in 2006 Marcus Randall, M.D., became the new Chair. Our program has always felt it important to have the Chair of Radiation Medicine on our faculty, given the degree to which our program makes use of Radiation Medicine faculty and resources, and Dr. Randall has been an active member of our faculty since his arrival. He is highly thought of by Hospital and College of Medicine Administration, and within the next year Radiation Medicine will acquire a new tomotherapy unit (our first), a new state-of-the-art Gammaknife, and important new ancillary equipment; these acquisitions will add to the practicum experiences given to our students.
- In Fall 2004 and thereafter, the program moved toward enrolling 8 students per year, up considerably from prior numbers. This rise was dictated by demand and by a new state requirement that master's programs at state-supported institutions must average a minimum of seven graduates per year. Despite this increase, we have been able to retain and add to the quality of our practicum training, which we estimate to be the equivalent of 7-9 months of full-time residency-type training (this training begins part-time in the second semester of our "four-semester plus one summer" program length).

I will be pleased to supply any additional information upon Committee request. Best wishes.



**2008 Self Study Report**

**to**

**Commission on Accreditation of Medical Physics Education Programs**

**by**

**Program in Radiation Science, M.S. in Radiological Medical Physics option  
University of Kentucky Medical Center**

**28 May 2008**

**Program Director:**

**Ralph C. Christensen, Ph.D.  
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**-i-**

## I. Program Goals and Objectives

The University of Kentucky Program in Radiation Science, M.S. in Radiological Medical Physics option, is designed to lead to a terminal master's degree in therapeutic medical physics. This program is administratively housed in the Division of Radiation Sciences, Department of Clinical Sciences, College of Health Sciences. The goals of the degree option are to produce graduates who are competent professionals capable of assuming appropriate responsibilities in the clinical practice of therapeutic medical physics, initially under the supervision of a Board-certified therapeutic medical physicist, whether the employment is as a junior medical physicist or as a resident. The endpoint which we seek for our graduates is to supply leadership and useful innovation in practice, in order to meet local, regional, and national needs in therapeutic medical physics. Additionally, we train and expect our students to engage in lifelong learning activities, which may encompass a higher degree and shall include continuing education activities; regular attention to the latest professional journals and books; attendance and participation at annual and regional meetings and summer schools; opportunistic clinical research; teaching of medical residents, technologists, and therapists; service to the profession, etc.

To these ends, program students are taught using a variety of didactic, laboratory, and clinical practicum methods, typically for a period of time which lies between 22 and 24 months in duration. No research thesis is required, but students must each engage in clinical research activities for two semester hours with one of our clinical faculty. All students make several individual oral presentations to faculty and other students as part of practicum, seminar, and didactic coursework requirements. Practicum, research, and some didactic coursework require all students to ferret out information via references, library, internet, and live experts. The tools needed to excel in terms of future learning activities, resident and technologist teaching, and applied clinical research are thus engendered in all students. The practicum experiences, which as a minimum are obtained over three semesters (part-time) and one full-time summer and require reaching certain minimum outcome objectives (see RM 660 in Appendix C), bring our graduates to a competency level needed to assume appropriate responsibilities in the clinical practice of therapeutic medical physics under the supervision of a Board-certified medical physicist, either in a residency or a junior physicist setting.

## II. Program Evolution and History

This program was initiated in 1968 and led to what then was called a M.S. in medical radiation dosimetry despite its physics emphasis (the degree name was changed to radiological medical physics about 25 years ago, when "dosimetrist" acquired its current meaning). Most of the personnel and equipment resources existed in the Department of Radiation Medicine, College of Medicine, whereas the administrative resources were in the College of Health Sciences (then known as the College of Allied Health Professions); this distribution was a consequence of a College of Medicine ruling that academic programs could not be housed in clinical departments. That pattern persists to this day; full-time Department of Radiation Medicine physics faculty are seconded to this program (although are not funded by it) as joint appointees. There is thus a very close and collegial relationship between the Department of Radiation Medicine and the Division of Radiation Sciences (including a reciprocal joint appointment of Dr. Christensen to the Department of Radiation Medicine).

There have been close to 150 program graduates over the years. Since 2004, the program has averaged 6-8 graduates per year. As of May 2008, there are 15 enrolled students, all full-time. [Several 1970s and 1980s graduates of this program have become well-known in terms of their service to the AAPM and to CAMPEP. Some early names in passing include Jerry White (current AAPM president); John Hazle (current CAMPEP president); Charles Coffey; Robert Rice; Helen Chow; and Rosanna Chan.] A list of program graduates since 1997 is available in Appendix D.

Program faculty always include the Chair of the Department of Radiation Medicine; there have been only four individuals in that role in 40 years. Current Chair is Marcus Randall, M.D. In similar fashion, the Director of Physics in the Department of Radiation Medicine is always a member of our faculty, and there have been only four in 40 years (the fifth arrives June 2008 -- Janelle Molloy, Ph.D., will join us, coming from Mayo Clinic/Rochester). Guy Simmons, Ph.D., taught our diagnostic radiological physics and medical nuclear physics coursework (on a part-time basis) for about 34 years; he retired from teaching in 2006. Anthony Wolbarst, Ph.D., author of one of the several major imaging physics texts, joined our faculty full-time in 2006; he is triply Board-certified and handles the didactic coursework formerly covered by Dr. Simmons. There have only been two administrative directors of the Radiation Sciences Division and the M.S. program: initially Joseph Sayeg, Ph.D., succeeded in 1983 by Ralph Christensen, Ph.D. Other physics faculty members in the program have come and gone; most have remained for a minimum of seven years or more. The program has thus been blessed with low turnover of faculty.

This program was first accredited by CAMPEP in 1998 and renewed in late 2002. Changes in personnel and program since that renewal are few. Dr. Zwicker, then the Director of Physics, retired effective 1/31/08 and became an emeritus member of our faculty; he will return part-time beginning Summer 2009 to handle the administrative details of the academic program for at least a year (Dr. Christensen will retire in June 2009). Komanduri Krishna, Ph.D., left in 2002. Ali Meigooni, Ph.D., Professor; Ellis Johnson, Ph.D., Associate Professor; Anthony Wolbarst, Ph.D., Associate Professor; Marcus Randall, M.D., Professor and Chairman of Radiation Medicine; Travis Painter, M.S., Part-time Assistant Professor; and Ralph Christensen, Ph.D., Associate Professor and Director, Division of Radiation Sciences; will soon be joined as Radiation Science faculty by Janelle Molloy, Ph.D., Associate Professor and Director of Physics in the Department of Radiation Medicine. Several additional Board-certified Ph.D. and M.S. clinical medical physicists also participate in practicum instruction of our students, but are not presently Program faculty. All Program faculty except Christensen are Board-certified in their various specialty areas.

Program educational content has been upgraded to reflect current practice in individual courses during the past six years, but no changes in Program requirements have been made since the 2002 reaccreditation. We have historically taught therapy physics as a single course, supplemented and amplified in seminar courses and in practicum, but that approach has unduly fragmented our brachytherapy instruction, so we have put together a new brachytherapy-specific course (RAS 650(2)) and received University permission to offer it. We anticipate first offering it in Spring 2009, and a syllabus for the new course is available in Appendix C.

Student recruitment and quality has changed over 40 years. In the program's first 15 years, about a third of the recruited students fell into the category of "disappointed pre-meds", and needed to have their physics backgrounds supplemented. The rate of success of these students was no different than for the undergraduate physics majors; however, about a half dozen of them ended up going to medical school either right away or after practicing medical physics for a few years. Five of those became radiation oncologists, one became a diagnostic radiologist. In later decades, we only rarely accepted students lacking key physics courses, and the incredible increase in applicants since 2001 has allowed us to cherry-pick some extremely well-prepared students (we had sixty applicants for the eight positions available in our Fall 2008 class). We have been aided in this process by the availability of the Kentucky Graduate Scholarship (KGS), which up to 2008 has paid (to new out-of-state students with undergraduate g.p.a. values above a specified minimum) the out-of-state portion of the graduate tuition; this has (since the inception of the KGS program in 2001) allowed us to recruit from the northeast, the upper midwest, and the west for the first time.

In the past two years, our students have faced significant difficulty in finding good jobs. They tend to interview very well, due to their clinical hands-on training, and have good success rates for being offered jobs after an in-person interview, but there appear to be fewer starting positions (and therefore fewer interviews) available in North America at the present time. Last year, all but one of our graduates had found good jobs by a week or two after completing their comprehensive final oral exams, but they were delayed perhaps two months in landing a job compared to previous years. This year's graduating class appears to be having similar difficulty. We may be at a point of overproduction of new medical physicists in North America, based on this and similar data from other academic programs.

### III. Program Structure and Governance

The M.S. in Radiological Medical Physics option of the Radiation Science Program is administratively housed in the Division of Radiation Sciences, Department of Clinical Sciences, College of Health Sciences. Within the Division, Christensen (full-time), Wolbarst (full-time), and Painter (part-time) are funded entirely by state dollars. All other faculty are joint appointees, with their funding (100%) and primary appointments in the Department of Radiation Medicine, College of Medicine. This split, cross-college arrangement has existed for the forty year life of this program, and has been remarkably stable despite occasional changes of chairs and faculty; recruitment of physics faculty in both groups has consistently included selection for excellence and commitment to teaching. Close linkage with and understanding of the priorities of Radiation Medicine is and always has been assured via the presence on the Radiation Science faculty of both the Chair and the Director of Physics of Radiation Medicine. The M.S. in radiological medical physics option could not exist without the continued whole-hearted support of the Department of Radiation Medicine; indeed, this degree should be considered to be dually sponsored.

This program has no direct linkages with other clinical or academic programs of the University, but we do rely on certain coursework taught elsewhere: departments teaching courses satisfying missing prerequisites in statistics, computer science, anatomy and physiology; Physics and Astronomy, which teaches the required PHY/EE 402G Electronic Instrumentation and Measurements course and has available coursework which can be used to strengthen weak physics minors; and Radiation Medicine, which teaches RM 740 Mammalian Radiobiology, RM 842 Radiation Oncology, RM 660 Graduate Practicum in Radiation Medicine; RM 848 Brachytherapy Practicum; RM 849 External Beam Practicum, and numerous courses cross-listed with Radiation Sciences.

Graduate programs within the institution exist under a dual umbrella. The Graduate School provides quality assurance for admissions, program content, and program completion (technically, graduate programs at UK can be viewed as creatures of the Graduate School which are supported by their home divisions, departments, and colleges). It makes available on a competitive basis very modest student, research, and recruitment funding, and when appropriate identifies research-competent faculty for service as thesis advisors, comprehensive examiners, etc. The home college for a graduate program provides all other resources.

A person becomes a member of the Radiation Sciences faculty through action by the Division Director with the concurrence of the program faculty, the Chair, the Dean, the Provost, the President, and the Board of Trustees. If the appointment is joint, concurrent approval by the individual's home department chair and Dean must also occur. A faculty member can become a Full or Associate Member of the Graduate Faculty (able to be instructor of record for purely graduate courses and (if Full) direct thesis research) through recommendation by the Division Director and Chair with concurrence by the Dean of the Graduate School and (if Full) the Graduate Council, based heavily on perceived research capability as well as scholastic issues. All Radiation Science Program faculty except Painter are currently Full or Associate Members of the Graduate Faculty.

The M.S. in Radiological Medical Physics degree is issued upon the authorization of the Graduate School, following a terminal comprehensive oral examination by three or more Program Graduate Faculty members, with prior audit to ensure that all program requirements have been met. Additional roles of the Graduate School are largely ones of monitoring program excellence and adherence to pertinent rules, guidelines, and content. Advising, course preparation and maintenance, and resource acquisition and allocation is almost entirely the function of the Division. Some student travel funding, a few fellowships, some minority funding, and some program advertising and speaker funds can be obtained from the Graduate School. The Dean of the Graduate School serves as the Chair of Graduate Council, which evaluates all graduate program proposals and changes for possible approval. All academic programs of the University are reviewed on a nominal 6-year basis.

Clinical access for students is primarily obtained through the RAS 651 Imaging Physics Laboratory and the RM 660 Graduate Practicum in Radiation Medicine (which spreads through three semesters and a summer, minimum). RM 848 and RM 849 are used, when needed, as extenders of the practicum when students have taken the maximum number of credits available for RM 660. Only the UK Hospital and its satellites are used routinely for clinical physics training. Primarily students train using regular clinic equipment, although Radiation Sciences provides the imaging physics phantoms and dosimetry systems. A 3-D treatment planning workstation is provided by Radiation Medicine to the graduate student work room in the Department of Radiation Medicine, for ease in initial external beam treatment planning instruction. Radiation Medicine typically operates three linacs in the UK Hospital (currently a Varian Platinum & an EX, both with IMRT capability, and a tomotherapy unit is on order), with five additional linacs at four satellite locations. There is access to a Gammaknife, and a new cutting-edge Gammaknife is being ordered. HDR is extensively used, a dedicated CT unit provides digital patient data directly to the treatment planning complex, and a traditional simulator is also available. A new CT unit will be ordered as part of the tomotherapy complex. Students therefore have a host of hands-on opportunities to learn, including acceptance testing, commissioning, and more routine QA activities.

The role of the program director, as defined by CAMPEP, is largely carried out by Christensen, the current Director of Graduate Studies and long-term director of the Radiation Sciences Division. Traditionally, however, the Director of Physics in Radiation Medicine also plays a key role, both in helping coordinate faculty teaching assignments, being in operational charge and having faculty oversight of the practicum activities of the students, and offering seasoned advice regarding directions in which the program should evolve. Changes in personnel assignments can occur from the bottom up, via recommendation from the faculty with concurrence from administration, or from the top down, initiated by respective Deans, Chairs, and/or Directors.

Program faculty see each other frequently, several times a day for the clinical faculty and several times a week for those housed in the Radiation Science area (which is across the street from Radiation Medicine). Problems with courses and students are usually solved during these frequent encounters, or via e-mail. We have found that formal program faculty meetings do not need to occur monthly unless we are working to solve a major issue. Last fall we had three meetings in two months as we tried to decide how this program should evolve as a response to changing pressures of diminished demand for graduates, new requirements for admission to Board exams, and a doubling of medical physics programs and output in the past decade. We finally decided to postpone a decision for a year, while we waited to see what evolved nationally during that time frame. It is likely that we will have a similar series of meeting this coming fall. However, routinely we hold two meetings a year to discuss student selection, review student performance, and raise any other issues such as curriculum adjustments that need to be addressed.

The only permanently-constituted Program committee is the admissions committee, in which the physics faculty act as a committee of the whole to evaluate applicant paper records and interview candidates. Ad hoc committees can be (and have been) created as needed. Having a single-focus, single-degree-option therapeutic radiological physics program with no thesis requirement significantly decreases the need for committees.

## IV. Curriculum

### A. Degree Requirements

This program option follows the general degree guidelines set by the Graduate School. There is no thesis requirement. (There is, however, a two-semester-hour opportunistic clinical research requirement, fulfilled by arrangements between students and individual program faculty. This M.S. program is designed to deliver a terminal M.S. degree, in essence a professional degree, and the research performed is that seen in normal clinical practice. In effect, our research requirement is an extension of our practicum requirements.) There is a minimum Graduate School requirement of 30 semester hours of graduate instruction (courses with numbers between 400G and 799), but additionally the program has all students take one or more courses with professional rather than graduate credit (800-899), such as RM 842 Radiation Oncology. Any missing prerequisites, such as human anatomy, must also be taken. Focused, full-time students entering with few missing prerequisites are expected to obtain their degree within 22-24 months; part-time students or those entering with substantial missing prerequisites may take significantly longer. An overall B average (3.0) in all graduate-level instruction must be maintained; a student falling below that level has only one semester (or 9 additional credit hours) to erase the deficiency before being dropped from the University. Normal semester load is 9-15 semester hours, with nine being the minimum full-time load. The sequenced nature of most of the program coursework forces Fall admission only.

Program-specific required coursework includes:

PHY/EE 402G (3)	Electronic Instrumentation and Measurements	(lecture/lab)	(requirement waived for prior electronics)
RM/PHY 472G (3)	Interactions of Radiation With Matter	(lecture)	
RAS/RM/PHY 545 (3)	Radiation Hazards and Protection	(lecture/lab)	
RAS/RM/PHY 546 (3)	General Medical Radiological Physics	(lecture)	
RAS/RM 601 (2)	Advanced Radiation Dosimetry	(lecture)	
RAS/RM 647 (3)	Physics of Diagnostic Imaging I	(lecture)	
RAS/RM 648 (3)	Physics of Diagnostic Imaging II	(lecture)	
RAS/RM 649 (3)	Physics of Radiation Therapy	(lecture)	
RAS/RM 650 (2)	*Physics of Radiation Therapy II: Brachytherapy	(lecture)	(new course, to be first taught Spring 2009)
RAS 651 (2)	Advanced Lab. in Diagnostic Imaging Physics	(lab)	
RM 660 (6)	Graduate Practicum in Radiation Medicine	(practicum)	
RAS/RM 695 (2)	Research in the Health-Related Rad'n. Sciences	(research)	
RAS 710 (1)	Radiation Science Seminar: (by subtitle)	(seminar)	
RM 740 (2)	Mammalian Radiation Biology	(lecture)	
RM 842 (1)	Radiation Oncology	(lecture)	

Students completing this coursework satisfactorily must also pass a comprehensive final oral examination conducted by a minimum of three, but usually by five, examiners, one of whom is usually a radiation oncologist. To pass, the student must receive "yes" votes from a majority of the examining committee. The Rules of the Graduate School require a "fail" if the committee is evenly split. A second failure of this exam means that no degree will be received.

The Division may accept non-traditional students and recognizes potential difficulty in their full-time attendance; therefore, there is no minimum semester load. The Graduate School maximum time to complete a M.S. is now six years.

Note in passing that students lacking any prerequisite requirements will be required to make up the missing prerequisites; prerequisites include human anatomy (at UK, ANA 209 (3)), human physiology (at UK, PGY 206 (3)), a scientific statistics course (at UK, STA 570(4) or STA 381(3)), and a scientific programming course (at UK, CS 221(2))

### B. Design and Content

Our M.S. curriculum is found in IV.A. above. We believe this curriculum to be consistent with recommendations presented in AAPM Reports #2 and #79. In keeping with our emphasis on therapeutic medical physics, we address the various topics as follows:



<u>Topic</u>	<u>Required Coursework</u>
Anatomy, Physiology, Statistics, Scientific programming/computer science	Prerequisite requirements, which if missing can be satisfied at UK with one-semester coursework such as ANA 209(3), PGY 206(3), CS 221(2), and STA 570(4) or STA 381(3).
Diagnostic imaging physics	Half of RAS/RM/PHY 546(3); RAS/RM 647(3); 2/3 of RAS/RM 648(3); 7/8 of RAS 651(2); portions of RM 660
Medical nuclear physics	1/3 of RAS/RM 648(3); plus 1/8 of RAS 651(2)
Electronics	PHY 402G(3), plus opportunities in practicum settings. Most entering physics majors have had coursework in this area, allowing waiver of 402G.
Health physics/radiation protection	RAS/RM/PHY 545(3); 1/8 of RAS/RM/PHY 546(3); mandatory rad safety office training; plus practicum opportunities
Radiation Biology	RM 740(2); parts of RM 842; small parts of RAS/RM/PHY 545(3)
Radiological Physics	¼ of RM/PHY 472G(3); ¼ of RAS/RM 601; parts of RAS/RM 649
Dosimetry	¼ of RM/PHY 472G(3); ¾ of RAS/RM 601(2); ¼ of RAS/RM/PHY 545; part of RAS/RM 649(3); part of RM 660
Radiation Therapy Physics	RM/RAS 649; 1/3 of RAS/RM 546; parts of practicum courses RM 660, 848, 849; new course RM/RAS 650(2)
Professional Ethics	Ethics considerations are touched on in RAS/RM/PHY 545, RM 842, RAS/RM 649 & 650, and practicum activities

All coursework is taught annually. Brief summaries/syllabi of the courses are available in Appendix C. The typical sequencing of courses is shown in IV.C., below.

#### IV. C. Sample Academic Plan

The following courses are taught at least annually, in the semester shown. Sequences include: diagnostic radiological physics: 472/546 to 647 to 648/651; therapeutic radiological physics: 472/546 to 601/649 to practicum; radiation safety: 472/546 to 545/practicum. Practicum semester hours do not reflect the major time spent in practicum activities; one semester hour of RM 660 is sufficient to establish malpractice insurance coverage and constitutes a minimum signup (as, for example, in summer).

**Fall I:**  
 RM/PHY 472G(3)  
 RAS/RM/PHY 546(3)  
 RM 740(2)  
 ANA 209(3) or other missing prerequisite

**Spring I:**  
 RAS/RM 601(2)  
 RAS/RM 647(3)  
 RAS/RM 649(3)  
 RM 660(1)  
 RAS 710(1)  
 RM 842(1)  
 RAS/RM 650(2)

**Summer I:**  
 RM 660(1)  
 missing prerequisite

**Fall II:**  
 PHY 402G(3)  
 RAS/RM 648(3)  
 RAS 651(2)  
 RM 660(2)  
 RM 695(1)  
 missing prerequisite, if any

**Spring II:**  
 RAS/RM/PHY 545(3)  
 RM 660(2)  
 RM 695(1)  
 RM 849(3)  
 missing prerequisite, if any

**Summer II:**  
 Complete practicum objectives (as needed)

#### IV. D. Evaluation of Curriculum

Changes in required curriculum are initiated by the faculty of the Division, then pass sequentially for approval through the CHS Academic Affairs Committee, the Health Care Colleges Council, the Graduate Council, and the University Senate Council. Issues involving major changes in resource allocation must be approved by the Dean, the Provost, and potentially the President and Board of Trustees.

Our faculty addresses possible curriculum changes as a "committee of the whole", with input supplied via student evaluations and comments, alumni and employer comments, final oral examination perceptions by faculty, and external reviewers. Minor tuning occurs fairly frequently within individual courses. Major problems are addressed at regular or specially-called faculty meetings, where the faculty will brainstorm, compromise, and formalize a proposal for change. The Director of Graduate Studies for the program, or his/her designee, typically authors the formal proposal and shepherds it through the various committees mentioned above. The University process can be slow, and proposals for change can take a year or more to implement. As example, approval to teach the new RAS/RM 650 course mentioned above, took a year to be obtained. Our Radiological Medical Physics program has had no major curriculum changes since our renewal in 2002 (the RAS/RM 650 course is not as yet a formal requirement, although all of our students will take it).

Courses are evaluated by students the week prior to final examinations using a standard campus evaluation form. Results are made available to faculty and administrators some months later. Results of such evaluations, which become part of faculty files, may exert a major influence on promotion and tenure decisions and on merit evaluations for salary purposes. Faculty members may request unannounced visits to their classes by peers, to provide additional feedback and evaluation information. Student and peer feedback is used by faculty to improve personal delivery style, course organization, aspects of student motivation, etc. Some evaluations are included in Appendix C as part of the expanded course descriptions.

During the student evaluation process, the questionnaire form is passed out to students, following which the instructor immediately leaves the classroom. After completion of responses by the class, a previously-designated student carries the response sheets in a sealed envelope to a neutral College secretary, who forwards them to a central campus processing location for electronic scanning and tabulation. Results become available some months later. Spring 2008 evaluations are not yet available as of this writing.

#### V. Students

##### A. Admissions

In recent years admissions activities have been carried out largely using the internet. We have not recently engaged in off-site recruiting or used Peterson's Guides because those activities have been unnecessary. We had sixty applicants this year for our eight available student openings for Fall 2008. The CAMPEP and AAPM listings of CAMPEP-accredited programs are the primary mechanism by which we are recognized by prospective students, who then e-mail us for information. Alternatively, search engines find our program description on our College of Health Sciences website at: <http://www.mc.uky.edu/healthsciences/radsci/radmed.html>. In place of an application packet, we send an e-mail full of information. A copy of such an e-mail is reproduced below.

Good afternoon! This is an e-mailing going to students applying to enter the University of Kentucky M.S. program in medical physics in August 2008. It is intended to be informational about both our program and about medical physics as a profession. Application to our program can be made via the web; the application form is available as a hot button selection on the University of Kentucky Graduate School's homepage. General GRE and TOEFL (minimum 550 or equivalent) scores are required by the Graduate School. Application fee is \$40 domestic, \$55 international. Letters of recommendation (3) may be sent to the address below.

We are sending this in order to flag to your attention our intent to begin making offers of admission in very early February. We find that the "paper record" of applicants is generally insufficient for us to have any chance to evaluate certain intangibles, such as motivation, ability to work as a member of a team, ability to communicate clearly and unambiguously, etc., all of which are critical to your functioning well as a clinical medical physicist. So we really strongly encourage visiting us if you have not already done so. Please feel free to e-mail me to set up a time to visit, or to ask any other questions about medical physics that may arise. We wish you the very best for your professional careers

(regardless of which medical physics program you eventually might attend!) Please see commentary below.

Cordial regards. Ralph Christensen.

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Information about the M.S. in Radiological Medical Physics (therapy emphasis) at the University of Kentucky:

Thank you for your inquiry about the University of Kentucky program leading to the M.S. in Radiological Medical Physics. This program is unique in that a large portion of time (beginning in Semester 2) is spent learning in the clinical setting, working on the requirements of our very extensive clinical practicum. Considerable information about our program can be obtained by accessing our web site at:  
<http://www.mc.uky.edu/healthsciences/radsci/radmed.html>. This program, accredited by the Commission on Accreditation of Medical Physics Educational Programs (CAMPEP) is one of the best medical physics programs in North America, and is particularly well-known and liked for its extensive clinical training. Our graduates do very well on certification examinations offered by the American Board of Radiology, and historically have been very successful at finding good first jobs. Two of our graduates have become President of the American Association of Physicists in Medicine (AAPM), and many others are found in positions of major national responsibility. We are pleased to dialog with prospective students and with those who simply want to know more about medical physics; contact Dr. Christensen at [rcchril@email.uky.edu](mailto:rcchril@email.uky.edu) with any questions. Below please find additional specific information about our program.

(1) We offer ONLY the M.S. degree, with specialization in therapeutic medical physics (although our students are required to take substantial coursework in imaging physics as well). A MS degree in medical physics qualifies one to do anything in clinical medical physics practice that a Ph.D. would, and may actually be slightly more marketable due to slightly lower salary (typically \$10-15K per year less). The Ph.D. is a qualifying "ticket" if you aspire to be a chief medical physicist at an academic medical center, or if you want to be strongly academic and research-oriented in your focus, but many experienced M.S. medical physicists are chief physicists at their regional medical centers. Economically, getting the Ph.D. is a wash; you lose income for an average 2-3 years beyond the MS level (which costs on the order of \$300,000 at today's salaries), for an income enhanced by \$10-15 K annually, spread over 30-35 years. There are nearly as many M.S. members as Ph.D. members of the AAPM.

(2) Job prospects currently remain good. We expect there to be an oversupply of recent graduates not too many years from now, because of new programs beginning to come on line. However, because of UK's extensive clinical practicum training, our students have a big competitive edge on the graduates from other accredited programs, most of which offer relatively little clinical experience to their students. If you decide to come visit us, you will see first-hand the kind of clinical training our students get, beginning in their second semester in the 2-year program. Students usually obtain their jobs prior to taking their final oral comprehensive exam, and some obtain firm job commitments several months prior to graduation. It is typical of our graduating students that if they can arrange an in-person interview, their chances of obtaining the job offer have been better than 50-50.

(3) Average starting salaries for our grads are running in the \$90K/year range, occasionally into six digits (sometimes a grad accepts a job at \$60K or \$70K in order to get to the particular location they want; in such cases the employer makes a commitment to raise the salary to AAPM norms within a year (after the grad proves her/himself), and that arrangement has always worked).

(4) All of the accredited medical physics programs have large applicant pools. In the past several years, we have typically gotten 40-50 (or more) applications for our eight annual positions. Out-of-state students entering UK with at least a 3.50 gpa in (separately) undergrad and grad work, are eligible for a Kentucky Graduate Scholarship (KGS), which takes care of half of the out-of-state portion of the tuition. In-state tuition to this program in '07-'08 is about \$4500 per semester. We do not have TA or RA support available, and actually discourage time-consuming part-time jobs because they interfere with the student's ability to finish the clinical practicum in a timely manner ..... thereby delaying graduation and costing the student the ability to earn a professional salary during that delay.

(5) Prospective students applying from certain southeastern states are eligible for Academic Common Market status to this program, which means that for tuition purposes they are treated as

in-state residents. The states which have listed our program include Delaware, Maryland, Mississippi, South Carolina, Tennessee, Virginia, and West Virginia.

(6) Beginning in 2014, the American Board of Radiology will enforce a new rule, that applicants to take the Board certification exams must have completed a two-year CAMPEP-accredited residency program. Our understanding is that students admitted to our program in 2008 and graduating by summer 2010, should be able to take the Board exams under the old rules (essentially, working after graduation full-time under a Board-certified medical physicist for a minimum of three years before applying for Part II of the written exam and the subsequent oral exam; Part I should be taken and passed immediately after graduating from the academic program). Note that our graduates do very well on the Board exams and typically will pass on the first try.

(7) As soon as possible, you should arrange to shadow a local or regional medical physicist for several hours one day, so as to obtain a first-hand view of the typical workday of a clinical therapeutic medical physicist.

(8) We select the members of each year's class based on the strength of their academic credentials and also factor in their apparent ability to work well in a team setting. (Our classes typically bond closely together and can be seen in later years clustered together at annual meetings of the AAPM.) Our ability to assess an applicant's "teamwork skills" is greatly enhanced by meeting applicants and chatting with them for a while. Therefore, we strongly encourage a visit to UK's program, which ideally will occur no later than late January (the sooner, the better). Many programs begin offering admission by early February, so you are strongly encouraged to have all application materials in (including General GRE scores) to your desired schools, and visits made, no later than late January.

We look forward to reviewing your credentials and a possible visit!

The program applicant completes all application materials and arranges for all supporting documentation such as GRE General scores, TOEFL scores where appropriate, and official transcripts to be sent to the Graduate Admissions Office. Letters of recommendation are sent directly to the program. Once received, Graduate Admissions posts g.p.a., GRE, TOEFL, and contact information on a restricted web site available to directors of graduate studies by program password. Once they have received all information required by Graduate Admissions, the candidate's file is "routed" to the program, at which time the candidate is able to be considered for potential admission. If candidates have not yet visited the program, and we have interest in the candidate, we then issue an offer to visit (unfunded by the program), at which time prospective students are interviewed by faculty and by current students. At the end of January, the faculty review candidate information and a priority list for offering admission is established (the list can be modified if new candidates arise). Offers of admission are made beginning in early February, and on a rolling basis thereafter. Since our program is effectively capped at eight admittees per year (driven by the practicum capacity), we will frequently have turndowns in March and April that force us to go to our backup pool to complete the class. Clearly incapable applicants are rejected immediately, and those who are not "top tier" applicants are held in the backup pool until May, at which time (if the class has been filled) they are notified that our class is full and we are unable to accommodate them this year. They are given the option to roll over their application to the next Fall, at no additional charge, if they wish. We have had no difficulty in filling our program in recent years with good-to-excellent quality students (see below).

Applicants are evaluated on the basis of a number of factors, including academic background, GRE General scores, grade point average, recommendation letters, motivation, relevant work experience, and overall impression including that obtained upon interview. Selection is non-discriminatory except as related to standards for academic qualifications. Prerequisite requirements for the M.S. in Radiological Medical Physics option include:

- a major in physics or a related physical science/engineering or mathematics major with the equivalent of a minor in physics
- mathematics through ordinary differential equations
- one semester of human anatomy
- one semester of human physiology
- one semester of scientific statistics
- one semester of computer science (scientific programming)

Given the fact that extremely few physics majors have completed all of these requirements, students may (at the discretion of the Director of Graduate Studies) be admitted to the program while completing a modest number of missing prerequisites. Appropriate program coursework may be taken concurrently. Students needing physics strengthening take sufficient additional physics coursework to satisfy the requirements for a physics minor in the Department of Physics and Astronomy at UK, or equivalent.

Information regarding students admitted in the past five years, follows.

Table 1. Chronological list of students entering the radiological medical physics M.S. program since 2003.

Student Ref. #	Entering Mo/Yr	Previous Degree(s)	GPA	GRE General Scores		A(%ile)
				V(%ile)	Q(%ile)	
03-1	8/03	B.S., physics	3.34	480(54)	670(66)	670(73)
03-2	8/03	B.S., M.S, physics	3.30	690(96)	730(78)	3.0(08)
03-3	8/03	B.S., science education (chem. & phys.)	3.73	550(73)	770(86)	740(89)
03-4	8/03	B.S., mechanical engineering	3.50	490(57)	750(82)	4.0(27)
03-5	8/03	B.S., physics	3.18	530(68)	750(84)	800(98)
03-6	8/03	B.S., physics	3.85	680(95)	720(75)	6.0(94)
04-1	8/04	B.A., physics	3.48	560(75)	680(66)	5.0(67)
04-2	8/04	B.S., nuclear & radiological engineering	2.71	470(51)	640(57)	4.5(47)
04-3	8/04	B.A., physics; B.A., mathematics	3.56	450(45)	650(60)	5.0(67)
04-4	8/04	B.S., mechanical engineering	3.28	550(72)	720(74)	4.0(28)
04-5	8/04	B.A., physics	2.96	470(51)	700(70)	5.5(84)
04-6	8/04	B.S., physics	3.10	480(54)	680(66)	6.0(95)
04-7	8/04	B.S., physics	3.75	430(39)	690(68)	3.0(06)
05-1	8/05	B.S., physics	3.68	430(39)	730(75)	4.5(52)
05-2	8/05	B.S., physics; M.S., physics	grad. 3.91	570(77)	750(79)	4.5(52)
05-3	8/05	B.S., nuclear engr. (radiological engr. specializ.)	3.46	560(75)	740(77)	5.5(86)
05-4	8/05	B.S., physics teaching; M.Ed., Secondary Ed.	3.12	460(48)	720(72)	4.5(52)
05-5	8/05	B.S., physics	3.92	380(25)	710(72)	4.0(28)
05-6	8/05	B.A., physics; B.A., mathematics	3.70	520(64)	780(86)	5.0(71)
05-7	8/05	B.S., nuclear engr. (radiological engr. specializ.)	3.30	480(53)	670(62)	6.0(96)
05-8	8/05	B.A., chemistry; B.S., biology	3.63	570(77)	760(82)	4.0(32)
06-1	8/06	B.S., physics; B.S., mathematics	3.80	540(69)	750(80)	4.5(51)
06-2	8/06	B.S., physics	2.77	500(54)	620(50)	4.0(32)
06-3	8/06	B.S., physics; B.S., mathematics	2.89	600(85)	760(90)	710(88)
06-4	8/06	B.A., physics	3.28	510(62)	690(66)	5.0(70)
06-5	8/06	B.A., physics	3.81	470(51)	740(78)	5.0(70)
06-6	8/06	B.S., chemistry; physics minor	3.55	450(45)	780(87)	5.0(70)
06-7	8/06	B.S., physics	3.28	560(75)	790(90)	5.0(70)
07-1	8/07	B.S., physics	3.81	590(82)	780(87)	6.0(96)
07-2	8/07	B.S., physics	3.71	550(73)	760(85)	5.0(71)
07-3	8/07	B.S., physics	3.54	420(36)	740(79)	5.0(67)
07-4	8/07	B.S., physics	3.96	740(99)	800(94)	4.0(32)
07-5	8/07	B.S., physics	3.87	600(85)	630(54)	4.5(52)
07-6	8/07	B.S., physics	3.81	510(62)	790(91)	5.0(71)
07-7	8/07	B.S., physics	3.23	550(73)	470(21)	4.5(52)
07-8	8/07	B.S., physics	3.62	420(37)	760(85)	4.5(52)
<b>Committed to enter 8/08:</b>						
08-1	8/08	B.S., physics	3.53	560(76)	780(90)	5.5(88)
08-2	8/08	B.S., biomedical engineering	3.54	620(89)	730(79)	4.0(33)
08-3	8/08	B.S., physics	3.33	550(72)	630(52)	4.5(51)
08-4	8/08	B.S., physics	3.33	480(55)	640(58)	3.5(18)
08-5	8/08	B.S., engineering physics	3.80	520(65)	750(84)	5.0(73)
08-6	8/08	B.S., physics	3.88	570(79)	770(88)	5.0(73)
08-7	8/08	B.A., physics	3.51	430(40)	730(79)	4.5(54)
08-8	8/08	B.S., physics	3.17	500(60)	770(88)	4.0(33)



## V. B. Recruitment Efforts

As specified in the first paragraph of V.A., we do not presently use information packets or Peterson's Guides, but rely on the very efficient AAPM- and CAMPEP-operated lists of accredited programs, as well as web access to our website, to bring inquiries to our doors. We occasionally visit regional Kentucky universities and college and give talks about medical physics. A copy of a brochure used in such cases, follows at the end of Section V. Very useful contacts include steering of prospectives to us by our own graduates and by others familiar with the hands-on excellence of our program, as well as by word-of-mouth among students and faculty within the University of Kentucky. Once the first contact has been made, we make every effort to open up an e-mail-based dialogue with the candidate, answering all questions with a short (less than 24-hour) turnaround time, and encourage a visit in person. Once a person visits and has a chance to interview with faculty and talk with current students, they leave with a very positive impression of the program. The only area in which we are less than competitive is in student support.

## V. C. Enrollment

The nominal capacity of this two-year program, driven by the ability of the Department of Radiation Medicine to mentor practicum students, is sixteen, eight per year. We evolved to eight per year, from six, several years ago, for two reasons: (1) the state began enforcing the new dictate requiring an average of seven graduates per year from M.S. programs supported by state funding; and (2) Radiation Medicine acquired an additional clinical physics line, justified by increased satellite activity but able to be used in the practicum setting as well. Keep in mind that all 16 students (both first- and second-year) are in the clinical setting each Spring semester (albeit on a part-time basis). This permits some professional interaction between the two groups, and allows the second-years to assist in some training and familiarization activities for the first-years. Students will typically finish the program, including the final oral exam, in 22-23 months, rarely a month or two less and occasionally up to several months later if delayed in practicum by outside work, unexpected medical problems, or too many missing prerequisites.

A list of students entering and present in the program in August 2007 is provided below. Note that there are only seven continuing (second-year) students listed; one student who had to drop out for serious medical reasons very shortly after entering in Fall 2006 is not included in the list (and was also omitted from Table 1, above).

**Table 2. Alphabetical List of Fall 2007 Graduate Students**

<u>Student Name</u>	<u>Month/Year Entered</u>	<u>Funding Source(s)*</u>
Megan Alexander	8/07	KGS, self
Nicole Bunda	8/06	KGS, self
Kathryn Dikeman	8/06	KGS, self
Laura Doyle	8/06	KGS, self
William Duppler	8/06	KGS, self
LeAnn Erbsen	8/07	KGS, self
Jenee Felly	8/06	ACM, self
Philip Kallenberg	8/07	KGS, self
Sean Mathews	8/07	ACM, self
Scott Montgomery	8/06	self
Michael Parish	8/07	KGS, self
Christopher Rucker	8/07	self
Imran Shah	8/06	ACM
Tyler Sullivan	8/07	KGS, self
Brian Vincent	8/07	self

\* ACM = Academic Common Market; KGS = Kentucky Graduate Scholarship. All students paid full in-state tuition and fees; ACM & KGS only accounted for the out-of-state portion of the tuition. No students had fellowships, or TAs, or RAs; however, several students are known to have had part-time jobs off-campus.

It is apparent from the table that all of our students are self-funded; we have no access to TAs or RAs, and the pool of Graduate School fellowships is very small, with many limited to UK graduates. Our program does not require a thesis, so there is not a list of thesis supervisors. The academic advisor in all cases is the Director of Graduate Studies, a role currently held by Dr. Christensen.

#### **V. D. Evaluation of Student Progress**

Student progress in the program is evaluated during each semester at the time of preregistration, and at the end of each semester following issuance of final grades. (Also, student performance is reviewed after each semester during a faculty meeting.) During preregistration, both student and advisor independently check the tentative schedule that was jointly created upon entry to the program, make modifications as needed, and the student then proceeds to register (electronically or by telephone). Since 80% or more of student coursework is the same for all students, there is little difficulty in this advising process. If students fall below a 3.0 (B) average overall, they go on academic probation and have a semester or 9 semester hours to raise the g.p.a. to at least 3.0. If they fail to do so, they are dropped from the University. An alternate mechanism by which students can be dropped can come into play if there is evidence of moral turpitude, drug usage in those involved with clinical practicum, etc. It is very unusual for any of our students to be at risk in any of these ways. A final check of student progress occurs at the time the student applies to take their comprehensive final oral examination. Both the advisor and the Graduate School check to be sure that all required coursework has been taken, and passed.

If a student has a grievance with a faculty member, and he/she cannot work through it with the faculty member, the student then goes to the Director of Graduate Studies and Division Director, then to the Department Chair, then to the College Dean. If the grievance is not by then addressed to the student's or faculty's satisfaction, the University Ombudsperson is available to assist in conflict resolution.

#### **V. E. New Student Orientation**

New students are familiarized with program and campus as follows: (1) Immediately prior to the start of classes, the College of Health Sciences gives an orientation for all students; professional, ethical, and behavioral standards and codes are passed out and discussed, as are students' right and obligations and the means by which to obtain a medical center badge; and a time is set up for training to pass HIPPA testing; (2) a tour of medical physics facilities is given by the Director of Graduate Studies to all students who did not receive one as a visiting student applicant; (3) a discussion of the requirements for graduation, as well as a two-year tentative coursework schedule, is given individually to each entering student; (4) financial aid and possible funding issues are discussed at the time a candidate visits campus; (5) the first day of classes, all incoming new students are introduced to each other and tips for program success are given by the Director of Graduate Studies. In addition, with permission of all the incoming new students, they are supplied with each others' e-mail addresses early in the summer, and can get to know something about each other using that mechanism. It is customary (but not required) that the rising second-year students will host some sort of social event the first weekend of the semester, to which all new students are invited. Additionally, the Department of Radiation Medicine has a picnic within 2-3 weeks after the beginning of classes, and all the graduate students are invited to attend.

#### **V. F. Safety**

Safety of our graduate students is promoted by: (a) use of common sense and avoidance of horseplay, coupled with the physics background training they have had; (b) an initial and specific safety orientation for each lab and practicum course; (c) six hours of required Radiation Safety Office training no later than the beginning of the second semester, at which time they enter practicum, are issued radiation badges, and are given specific instruction about the dangers of high voltage. Guidelines and restrictions for using potentially dangerous equipment can additionally be found in the operations manuals used by students and in the RM 660 Practicum instructions and outcome objectives syllabus. An introduction to linacs focused in part on safety issues is given each Fall by our linac engineer, to staff and students in Radiation Medicine.

**V. Appendix. Below is a list of the contents of the medical physics brochure that we use when needed.**

## VI. Resources

### A. Faculty

The faculty of the Program in Radiation Science, M.S. in Radiological Medical Physics option, are listed below. They are supplemented by teaching and mentoring services provided by other faculty members of the Department of Radiation Medicine, both in terms of coursework and clinical mentoring activities.

#### Radiation Science Program Faculty:

<u>Name</u>	<u>Specialty Area(s)</u>	<u>Certification*</u>	<u>Years in Program</u>	<u>Current Role in Program</u>
Ralph Christensen, Ph.D. Assoc. Prof., Director of Division	health physics & radiological physics	none	32	Director of Grad. Studies; teaches RM 472G(3), RAS 545(3), 2/3 of RAS 601(2), 1/3 of RAS 546(3)
Ellis Lee Johnson, Ph.D. Assoc. Professor (eff. 7/08)	therapeutic radiol. phys. external beam physics	ABR: TRP	9	Acting Practicum Dir.; teaches 0.6 of RM 649(3), 1/3 of RAS 601(2); major share of practicum teaching (RM 660). Also research mentor.
Ali S. Meigooni, Ph.D. Professor	therapeutic radiol. phys.: brachytherapy physics	ABR:TRP	13	Teaches 0.4 of RM 649, RAS 710(1), will teach RM 650(2); major share of practicum teaching (brachy), (RM 660). Research mentor (RM 695).
Janelle Molloy, Ph.D. Assoc. Prof., Dir. of Phys. (Rad Med)	therapeutic radiol. phys.	ABMP: rad. oncol. phys. 0	0	Arrives 6/08; expected to eventually direct practicum & probably do some teaching & research mentoring
Travis Painter, M.S. Part-time Assistant Professor	imaging physics, medical nuclear physics	ABR: DRP	3	Teaches RAS 651(2) imaging physics laboratory. Part-time.
Marcus Randall, M.D. Prof. & Chair, Radiation Medicine	radiation oncology	ABR: rad. oncology	-2	Participates in RM 740(2), RM 842(1), journal club, chart conferences, etc.
Anthony Wolbarst, Ph.D. Associate Professor	imaging physics	ABR: DRP, MNP, TRP	2	Teaches RAS 647, 648, 1/3 RAS 546.
Robert Zwicker, Ph.D. Professor Emeritus (as of 2/08)	therapeutic radiol. phys.	ABR: TRP	7	Since retirement, participates in final oral exams, provides references, etc. Taught 1/3 RAS 546(3). Former practicum director & past research mentor.

\*TRP = therapeutic radiological physics; DRP = diagnostic radiological physics; MNP = medical nuclear physics. ABR = American Board of Radiology; ABMP = American Board of Medical Physics.

In addition to the Program faculty above, the Program is assisted by other Radiation Medicine faculty and staff: John Ashburn, Ph.D., DABR; Prakash Aryal, M.S., DABR; Dharman Desai, Ph.D., and William St. Clair, M.D., Ph.D., Associate Professor. The first three are full-time staff therapeutic radiological physicists, and Dr. St. Clair is a radiation oncologist who also holds a doctorate in radiation biology and is usually the instructor of record for our radiobiology (RM 740(2)) and radiation oncology (RM 842(1)) team-taught courses.

The roles of Christensen, Wolbarst, and Painter within the program are primarily didactic and laboratory-based. Although Johnson, Meigooni, and (formerly) Zwicker teach didactic coursework, they and other staff physicists employed in Radiation Medicine work as a clinical team and integrate practicum students as junior members of that team. Other Radiation Medicine faculty members, non-Radiation Science Program faculty, are primarily responsible for RM 740(2) Mammalian Radiobiology and RM 842(1) Radiation Oncology. Faculty of the Department of Physics and Astronomy teach the required PHY 402G(3) Electronic Instrumentation and Measurements course.

With the exception of work by Dr. Meigooni, faculty publications have been modest in this time frame. Concern was expressed in the 2002 CAMPEP Review that this program should significantly amplify its student-related research productivity. That has not happened, in large part because the expectations by the then Chair of Radiation Medicine regarding physics research were low. All Radiation Medicine physics faculty have some research time carved into their Distribution of Effort. The new chairman of Radiation Medicine, Marcus Randall, has recruited a Director of Physics (Janelle Molloy) who has a record of successful research, including an NIH R01 grant, and the expectation by Dr. Randall and upper administration is that the entire

department needs to move more heavily into productive research as the medical center joins the main campus in evolving to reach "Top Twenty" status by 2020. The small, opportunistic student projects have resulted in some publications and presentations in the past five years, but the numbers have been down. Program reviewers should keep in mind that this program is MS-only, with intent to produce high quality clinical practitioners; long ago we made the deliberate choice to forego a thesis option in order to be able to spend that "saved" time in additional clinical training ("practicum"). Given that intent and deliberate choice, research has had a relatively low priority in this program.

## VI. B. Finances

In the 2007-08 academic year, the financial burden assumed by a graduate student in this program at the University of Kentucky, per semester, is:

Tuition & mandatory fees	\$4464 in-state; \$8695 out-of-state
Room & Board	~\$5100 (less if one lives off-campus or shares an apartment)
Books & Supplies	~\$400
Personal Expenses	~\$1000

Thus, a reasonable student annual (12-month) cost (including one semester hour of summer school enrollment) would be perhaps \$25,000 in-state, \$34,000 out-of-state. Health insurance is not included, but can be purchased for \$894/year.

The Division of Radiation Sciences (and, for that matter, the Department of Radiation Medicine as well) controls no fellowships or assistantships (hence, no Table 3: Financial Aid is included below). The Academic Common Market lists our program for residents of seven generally southeastern states which lack their own state-supported medical physics programs; students from those states can attend the UK program at in-state tuition rates (see above). Alternatively, an award called the Kentucky Graduate Scholarship, which in Fall 2008 will pay half the out-of-state portion of the tuition (and up to 2008 paid all of the out-of-state portion of the tuition) is given automatically to students entering UK with at least a 3.50 undergraduate g.p.a.; the award may be renewed for three additional semesters if the UK g.p.a. remains at or above 3.50. In the past five years, many of our students have taken advantage of one or the other of these two means of assistance.

The Division discourages part-time jobs or outside TA positions that take more than 10 hours per week, because such jobs interfere with timely practicum progress and often cost the student extra time to finish the practicum and hence the program. Since 2003, there have been no students with outside TA positions. Part-time jobs in Radiation Medicine are rare now that block-cutting is a rarity.

The University offers financial aid based on financial need through the Office of Student Financial Aid. Direct unsubsidized loans, not based on financial need, are also available to students. The Graduate School has a small pool of targeted fellowships available on a very competitive basis; only two of our students have obtained a single year of fellowship coverage since 2002. Thus, "free money" is nearly impossible to obtain at UK. Minority support on a matching basis is available through the Graduate School, but we have had no strong minority applicants in this time period.

## VI. C. Facilities

Most of the courses specific to the program meet in one of two rooms located within 500 feet of the Department of Radiation Medicine. Both rooms meet modern standards of lighting, ventilation, and comfort, are equipped with whiteboard, slide and overhead projectors, and computer-assisted projection, and seat approximately 16 students. The Radiation Science office area is located in the Charles T. Wethington Health Sciences Building, and comprises approximately 620 n.s.f., including a small library with tables and chairs; part of this area doubles as a student study area and can comfortably seat up to six working students at a time. A small 300 n.s.f. radiation safety teaching laboratory is located upstairs in the same building. A large study area for College students is located downstairs and is often used by our students.

Although student offices are not provided, students involved in Radiation Medicine practicum and research activities typically study and otherwise work in Chandler Medical Center Room C-23, approximately 300 n.s.f. in the heart of the Radiation Medicine area. This room is furnished with several desks and computers, and stores a variety of equipment used in therapeutic radiological physics applications. It is used additionally as a staging area from which students are pulled as interesting events occur in the clinical setting. The room contains a digitizer and a 3D treatment planning computer hard-wired to the main dosimetry & dosimetrist room; the students can be trained in and practice external beam treatment planning in their room without interfering with normal clinical dosimetry operations carried out by dosimetrists and physicists.

The University provides computing access to students through several large computer labs, one of which is within the Medical Center complex. This lab contains a variety of personal computers with fairly complete software packages and ethernet access. High-end computing, including access to UK's supercomputer and a supercomputer consortium, is available, and the campus is well-wired for ethernet connectivity.

The medical physics program relies primarily on clinical resources for its laboratory and research training activities. For the most part, the Department of Radiation Medicine itself constitutes the laboratory and practicum training site for program therapeutic physics activities. A portion of the RAS 651 imaging laboratory employs the use of Radiation Medicine diagnostic equipment, and additional equipment in the Nuclear Medicine Division, the Department of Diagnostic Radiology, and the Kentucky Clinic which is serviced by Mr. Painter, is also used for training. Occasionally, imaging labs make use of equipment found in other hospitals in Lexington; Travis Painter consults for those facilities. The PHY 402G(3) electronics laboratory course uses Physics Department facilities. Dosimetry equipment available to students includes several electrometer systems with a variety of ionization chambers, survey ion chambers, a variety of health physics survey instruments, etc.

Since student research and practicum learning is done with faculty, in principle all equipment in the Department of Radiation Medicine, including its four satellite locations, is available for learning purposes and for research, under appropriate oversight. (This can provide our students with considerable breadth of experience.) Included are eight linacs, a Varian HDR unit, a superficial therapeutic X-ray unit, a Gammaknife, a CT unit (soon to be replaced with an upgraded model), several simulators, several external beam and brachytherapy treatment planning systems, etc. Students are involved with virtually all physics activities including acceptance testing and commissioning when available. IMRT is available on two of the accelerators in the UK Hospital and also on one of the satellite linacs. Students using clinical resources are trained by faculty in their proper, safe use and how to leave them ready for the next use, be it clinical, research, or training. Students failing to follow proper procedures are reprimanded, and repeat offenders may be denied access. Student access to Radiation Medicine equipment is dictated by patient use patterns; linac calibrations tend to be done on nights and weekends, and HDR calibration might occur during the workday if a large unscheduled patient block of time is available, etc.

The University, a major land grant institution, has library holdings consistent with its size. It is a Federal repository. The U.K. Commonwealth Library is first-rate in holdings and has hundreds of ethernet laptop connections available. The Medical Center has a sector library with extensive holdings which include journals and books of relevance to medical physics. Radiation Sciences maintains a set of resources which includes all of Medical Physics, a nearly complete set of Health Physics Journal, and incomplete runs of Physics in Biology and Medicine, Radiation Research, NCRP Reports, ICRU Reports, AAPM Reports, and many dozens of relevant texts and other medical physics books and references. Radiation Medicine has a variety of physician-oriented radiation oncology journals, some of which carry significant physics articles.

## VII. Future Plans

### A. Summary of Strengths and Needs

A major strength of this program has been, and continues to be, the breadth and quality of the clinical training and experiences available to our students. This has always been a plus in helping students obtain challenging and responsible positions in strong hospitals following graduation. We believe that this emphasis not only contributes to immediate employability, but also to long-term clinical competence, as evidenced by the very large fraction of graduates who have become Board-certified early in their careers. It is not clear that our strong suit, extensive clinical training, will serve our graduates as well, in regards to finding residency employment once most North American graduates progress straight into residency training.

Another strength resides in the quality of our faculty. In their specialty areas, all are well recognized and highly competent. They are hard-working and are committed to high-quality education. All but one are Board-certified, and at least two have been Board examiners.

A third strength, albeit perhaps not readily apparent, is the unusual collaboration (between Radiation Medicine, College of Medicine, and Radiation Sciences, College of Health Sciences) under which this program has flourished for four decades. The fact that the faculty resources were NOT all in one administrative basket very likely preserved this program once (in the early '90s when the Department of Radiation Medicine fell upon hard times and the Chair was forced out through deprivation of departmental resources), and certainly contributes positively to the quality of the academic experience during times of acute clinical cost containment.

A fourth strength has been our students. A lack of financial aid resources has made it difficult to attract the highest g.p.a./high GRE candidates in the applicant pool; nonetheless we have been able to find students with excellent motivation, a strong work ethic, and a sturdy physics background; they often are used to putting themselves through school. This has often meant a solid if not exceptional academic performance, but has biased toward an outstanding practicum and workplace experience. Because of our reputation for hands-on excellence, students who tend to learn well through hands-on instruction tend to gravitate to this program.

The strengths above have led to the production of successful graduates who have been more than competent to begin in junior medical physics or residency positions with supervision, and who have proceeded in due course to become Board-certified. A very large chunk of the last decade's graduates who are Board-eligible (and practicing medical physics full-time) have already become Board-certified (and six more graduates are sitting for their orals in early June 2008). A list of the last ten years of graduates and their certification status can be found in Appendix D.

Our biggest need, one which we have always had, is to develop ways to minimize the monetary cost to our students that this program exerts. In past years, we have had somewhat less concern, due to the high starting junior physics salaries and the fact that all of our graduates had obtained jobs prior to graduation. Loans could be paid off quickly. However, the medical physics community is in the midst of a decrease in demand for new graduates, confounded by a sharp surge upward in the number of new graduates occasioned by a doubling of the number of programs in the past decade. Students no longer can be told that loans can be paid off quickly after graduation, because the risk of not getting a medical physics job is rising sharply. Our students are almost exclusively self-funded, and tend to borrow heavily to get through the program except when they have spousal support. Additionally, the newer programs tend to have seed monies to offer M.S. students, to decrease their cost. We are unable to compete economically with many other medical physics programs. This may, in time, compromise the quality and numbers of students we can attract to our M.S. program.

Our second major need is to find the right replacement for Dr. Christensen, the long-time director of the program. The first search process failed, and we are delaying a second search until the faculty decide whether we stay with the M.S. degree, evolve over time into a professional doctorate degree which would use most of the didactic and practicum skills we have developed, or end up with other options. This decision will hopefully occur in the Fall of 2008. The new leadership will carry the prime responsibility for arranging for the evolution of the program, so the hire is critical and will be driven in part by which future the faculty chooses to aim towards. Dr. Christensen will teach all the classes he has been responsible for, to the students entering Fall 2008, before his retirement, and Dr. Robert Zwicker will come out of retirement to cover on a part-time basis the administrative responsibilities of the program for at least the 2009-2010 academic year, at which time the new hire should be up to speed.

Our last major need is to decide the direction in which our program should evolve, and then take steps to assure that future. Given the new requirement (of a two-year accredited residency experience) which will have to be satisfied prior to sitting for the Board exams, we believe that the M.S. degree will hold less interest for baccalaureate-level physicists; rather, four years spent in obtaining a professional doctorate will be of much greater interest. The arrival next month of Janelle Molloy, who has much relevant experience with residency program issues, is expected to greatly assist us in objectively evaluating the resources available to us at UK, as we decide which track(s) we are capable of following.

## VII. B. Further Development and Improvements

The present critical need for our program is to decide whether to stay with the M.S., evolve to the professional doctorate, or pick some other option. We attempted to make this decision early last fall, but the ABR had not met yet, the feasibility of the professional doctorate concept was just beginning to be investigated, and the degree of saturation of positions for new graduates and the enhanced competition for students engendered by additional new programs was not yet clearly visible. The faculty voted to hold off a year and reconsider. The ABR has taken its position unambiguously now; the acceptance of the professional doctorate concept, and the economic feasibility of such programs are now less in question; and the job market is clearly much tighter for new graduates this year than it has been in many years. These are all issues the faculty will need to wrestle with in making their decision. We also wanted to delay until a new Director of Physics for Radiation Medicine was named; that has occurred, and Janelle Molloy will be starting in that role in June, so an early Fall decision should be able to be reached. At that point, a job description of the person who will best fit the decided-upon track should be created, and recruiting begun immediately. Hopefully, we will have the decision made by the time of a Fall 2008 CAMPEP site visit.



**College of Health Sciences  
Ad Hoc Policy for Determining the Future of Academic Programs**

**Proposed by 2010-2011 Faculty Council**

According to Senate Rule 3.3.2.1, “a recommendation to consolidate, transfer, discontinue, or significantly reduce a college, academic program or educational unit may be made by the program faculty, Department Chair/School Director, Dean, Provost or President. (Senate Rules, Page 63). Any decision must involve consultation with the Senate Council”.

According to GR VII.A.4, the faculty of each college shall establish its own rules, including a committee or council structure, necessary for the performance of the faculty's functions in educational policy-making. CHS College Faculty Rules do not encode specific or a clear standing policy on the procedures for consolidation, transfer, discontinuation or significant reduction of an academic program. The CHS Faculty Council (as the representative faculty body) has developed an ad hoc process that is consistent with College Faculty rules in regards to policy recommendations (CHS faculty handbook, p.18) and program change (CHS faculty Handbook, appendix 1), the Senate Rules in regards to these issues (SR 3.3.2), and the Governing Regulations in regards to educational policy (GR VII.A.4). The following outlines a process for dealing with these proposals.

Because a proposal that impacts the future of an academic program has been brought forward, this ad hoc procedure was developed to engage faculty in appropriate discussions and decision-making. In all situations, this process must be facilitated in a timely manner to allow students, faculty, and staff ample time to plan for future change. The policy will become a part of the standard procedures for the faculty and will be included in the Faculty Handbook.

Because the Academic Affairs Committee, a committee appointed by the Faculty Council, has the final vote to determine the recommendation about a given proposal, the Faculty Council will be designated as the faculty governance body to handle this process.

**Section A: For Proposal Originating from the Academic Unit Regarding Recommendation to Consolidate, Transfer, Discontinue, or Significantly Reduce a College Academic Program or Educational Unit.**

1. Proposals originating from the unit faculty must have in writing the Department Chair's position on the proposal. If the unit faculty members have made the proposal, the Academic Affairs Committee (AAC) will meet with the affected unit faculty, discuss ramifications and then vote support or non-support of the proposal. When AAC and the affected unit faculty and Department Chair are in agreement, the process will proceed as described in the CHS Faculty Handbook for program proposals. In the event of the AAC's non-support of the proposal, the affected unit faculty has the option of forwarding the proposal to Faculty Council (FC) for additional consideration. Both

groups (affected unit faculty and AAC) and department chair if needed will be asked to provide written documentation about issues surrounding potential changes.

2. FC will meet to review the documents and will then make a motion about how to proceed. In cases with differing opinions between the affected unit faculty, the department chair, and the AAC, FC may elect to engage unit faculty or the broader faculty in further discussions as defined in Section B 5, 6, 7, particularly when the proposal represents substantial changes for students and faculty.

**Section B: For Proposals Originating from Another Source Regarding Recommendation to Consolidate, Transfer, Discontinue, or Significantly Reduce a College Academic Program or Educational Unit. Outlined in Senate Rule 3.3.2.1.**

If the proposal comes from other sources as outlined in Senate Rule 3.3.2.1., FC or AAC representatives will initially meet with the “appropriate faculty”, defined henceforth as both those originating the proposal and those affected by it.

1. Both the affected unit and the originator of the proposal should meet to discuss ramifications and potential alternative solutions. If the affected unit concurs with the proposal, then the process will proceed as outlined above under Section A 1. If the affected unit does not support the proposal, then the following procedure would be followed.
2. Both groups (the affected unit and the originator of the proposal) will be asked to provide written documentation about issues surrounding potential changes that will facilitate discussion about the future of the academic program. This will be forwarded to both AAC and FC.
3. FC will meet with AAC to review the documents submitted by both parties and will then make a motion about how to proceed and present this motion to the appropriate group(s) of faculty (defined in 4). In cases with differing opinions between the originator and the affected unit, FC may elect to engage the broader faculty in further discussions as defined in steps 5, 6, 7, particularly when the proposal has substantial academic change. Alternately, FC, as representatives of the faculty, may elect to send the proposal directly to the AAC if that committee has not yet been involved, and the AAC may proceed as in A1.
4. Guided by the policies codified in Governing Regulations, Administrative Regulations, and the Rules of the University Senate, the Faculty Council will determine which faculty groups within the College should be involved in the decision-making process. Examples follow but may be altered if needed.
  - a. If the affected program is a graduate program, the graduate faculty will be involved.
  - b. If the affected program is an undergraduate program, all faculty engaged in undergraduate education in the College will be involved.
  - c. If the affected program is a professional program, faculty in professional and graduate programs will be involved.

- d. In all cases, all tenurable and tenured faculty members in the department that houses the academic program will be involved. Additionally, the Faculty Handbook voted on by the faculty grants voting privileges to research title series faculty, clinical title series faculty and lecturers. These faculty members will also be included.
5. If FC elects to send the proposal to the broader faculty, FC will circulate the written documents from both the originator of the proposal and those affected by it for review by the broader faculty.
6. FC members will schedule and lead a forum for discussion. Faculty representing both the affected unit and the originator of the proposal will be asked to present a summary of their positions.
7. Faculty in attendance will be allowed to submit questions in writing to discussion leaders, or pose questions during the discussion. There should also be time during the forum to allow for open discussion as needed. Faculty who are unable to attend, may also submit questions in writing before and after the discussion.
8. FC members will review questions and eliminate redundancies. They will then present the questions to the "appropriate faculty".
9. Each group will have the opportunity to respond to each question.
10. Following the forum, the faculty (as outlined in Step 4), will receive written ballots after the meeting allowing each faculty member to vote on the motion put forward by the FC as described in step 3.
11. The results of the vote will be reviewed by FC and will be forwarded with a recommendation to the Academic Affairs Committee for final disposition.
12. The Academic Affairs Committee will follow the CHS standard process of review of academic proposals. The final recommendation will be forwarded to the Associate Dean for Academic Affairs who will send it forward with a cover letter to the Health Care Colleges Council.

**College of Health Sciences  
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**Section B: For Proposals Originating from Another Source Regarding Recommendation to Consolidate, Transfer, Discontinue, or Significantly Reduce a College Academic Program or Educational Unit. Outlined in Senate Rule 3.3.2.1.**

If the proposal comes from other sources as outlined in Senate Rule 3.3.2.1., FC or AAC representatives will initially meet with the “appropriate faculty”, defined henceforth as both those originating the proposal and those affected by it.

1. Both the affected unit and the originator of the proposal should meet to discuss ramifications and potential alternative solutions. If the affected unit concurs with the proposal, then the process will proceed as outlined above under Section A 1. If the affected unit does not support the proposal, then the following procedure would be followed.
2. Both groups (the affected unit and the originator of the proposal) will be asked to provide written documentation about issues surrounding potential changes that will facilitate discussion about the future of the academic program. This will be forwarded to both AAC and FC.
3. FC will meet with AAC to review the documents submitted by both parties and will then make a motion about how to proceed and present this motion to the appropriate group(s) of faculty (defined in 4). In cases with differing opinions between the originator and the affected unit, FC may elect to engage the broader faculty in further discussions as defined in steps 5, 6, 7, particularly when the proposal has substantial academic change. Alternately, FC, as representatives of the faculty, may elect to send the proposal directly to the AAC if that committee has not yet been involved, and the AAC may proceed as in A1.
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