

Spring Student-Faculty Medical Physics Meeting

Location: HAMP 2118

Date: September 6, 2019 (Friday)

Time: 3:30-5:00pm

Spring Student-Faculty Medical Physics Meeting

Agenda:

- (1) MP Club Presidents – Mychaela Coyne and Daniel McIlrath
 - (2) CAMPEP Directors Meeting (10-min) – Dr. Stantz
 - Research or Project Involvement
 - ABR will require all core courses be taken before Part 1 exam
 - (3) MP Curriculum Requirements/Suggestions (5-min) – Dr. Stantz
 - (4) Professional Preparation, residency/job (5-min) – Dr. Stantz
 - (5) Clinical Opportunities (10-min) – Drs. Stantz, Dydak, Le, Rignor
- Open Discussion (30-min)

Introduction

New Students

OVRC AAPM Meeting

New Graduate Students



Abdulrahman Almalki



Patrick Bond



Yiu-Hsin Chang



Humberto Monsivais



Miranda Nichols



Alexis Webb

OVRC AAPM Chapter

Fall Educational Symposium events

See: http://chapter.aapm.org/orv/meetings/next_meeting.html

November 1-2, 2019

- [Crown Plaza Indianapolis - Downtown Union Station](#) in [Indianapolis, IN](#).
- Friday, November 1st from 6:00-10:00 pm in the [Indianapolis Zoo](#) The Oceans Exhibit.
- Saturday, November 2nd from 7:30am – 4:00pm: SYMPOSIUM Speakers and Events

Student Travel award

- <https://forms.gle/r6K8Eup41UGTMydi6>

Medical Physics Club

Mychaela Coyne

Daniel McIlrath

MP Journal Club

- Monthly Lunch Meeting (last Wednesday of the month)
 - Topical Article
 - Discussion with Faculty Member
 - Free Lunch
- First Meeting
 - September 25th at 12:00 pm in Physics 96
 - FLASH with Dr. Stantz
- Open to Everyone

Residency Support Group

- Connect all graduates interviewing for residency
- Provide support through:
 - Peer Review of Application Documents (e.g. Personal Statement)
 - Sharing of Knowledge and Ideas
 - Help through Community

Medical Physics Panel

- Panel of Local Medical Physicists
 - Diverse Expertise/Areas
 - Anecdotal Presentation
 - Q&A
- Tentatively End of October

GroupMe

HSCI grads



Please put your slides here

CAMPEP Directors Meeting

Dr. Stantz

New Requirements

- Research Projects shall be *required*

- HSCI 590 Independent Research – 6CR

or

HSCI 598 MS Thesis Research – 6CR

- Documentation

- Specific Aims page of Research Project (prior to research)
- Summarize Research in Manuscript Form (upon completion)

Identify a problem
Solve this problem
How this solution will impact the field

- ABR, will **require all core courses** to be taken prior to sitting for Part 1 of the exam

- Standard Plan of Study
- Accelerated Plan of Study

Changes in MP Program

Curriculum Changes

Other

Core Coursework – required for ABR Part 1

Prerequisites:

BIOL 203 - Anatomy and Physiology I (4 CR)

BIOL 204 - Anatomy and Physiology II (4 CR)

Physics Major or Minor

Core Courses:

- _____ (3) HSCI 312 - Radiation Science Fundamentals
- _____ (2) HSCI 313 - Principles of Radiation Detection and Measurement
- _____ (2) HSCI 514 - Radiation Instrumentation Laboratory
- _____ (3) HSCI 526 - Principles of Health Physics and Dosimetry
- _____ (3) HSCI 540 - Radiation Biology
- _____ (3) HSCI 570 - Introduction to Medical Diagnostic Imaging
- _____ (3) HSCI 572 - Radiation Oncology Physics
- _____ (2) HSCI 574 - Medical Health Physics
- _____ (1) HSCI 696 - Seminar in Health Sciences (initial student seminar)
- _____ (1) GRAD 612 - Responsible Conduct in Research
- _____ (0) (HSCI 501) - AAPM Professional and Ethics Modules

Recommended Courses

Independent Research (required)

_____ (6) HSCI 590 – Independent Research Project

Selectives

_____ (9) Selective List

(6) HSCI 690 -- Clinical Internship

Interests are in ...

Diagnostic Imaging Physics

HSCI 672 (3CR), HSCI 674 (3CR)

Radiation Therapy Physics

HSCI 690 (3CR), HSCI 690 (3CR)

(3) Selective(s)

Can always take more ...

Interests/mentor: Research, Health Physics, Imaging Sciences, Therapy, Biology

Selective Courses

Courses:

- _____ (3) HSCI 305 – Basics of Oncology
- _____ (2) HSCI 516 – Molecular Imaging in Nuclear Medicine
- _____ (3) HSCI 534 – Applied Health Physics
- _____ (3) BME 595 – Theory of MRI
- _____ (3) HSCI 590 – Data Acquisition and Image Reconstruction in MRI
- _____ (3) HSCI 590 – Magnetic Resonance Spectroscopy
- _____ (3) STAT 511 – Statistical Methods
- _____ (3) STAT 512– Applied Regression Analysis

Internships:

- _____ (3) HSCI 672 – MRI QA Intern
- _____ (3) HSCI 674 – Diagnostic Imaging Physics Intern
- _____ (3) HSCI 690 - Radiation Therapy (RT) Clinical Competencies I
- _____ (3) HSCI 690 - Radiation Therapy (RT) Clinical Competencies II

Research:

- _____ (1-9) HSCI 590 – Independent Research Project
- _____ (1-9) HSCI 698 – MS Thesis Research
- _____ (1-9) HSCI 699 – PhD Thesis Research

Physics Minor:

- _____ (1) PHYS 340 – Modern Physics Lab Basics of Oncology
- _____ (3) PHYS 342 – Modern Physics (required)
- _____ (3) PHYS 330 - Intermediate Electricity and Magnetism (recommended)
- _____ (3) PHYS 322 - Optics
- _____ (3) PHYS 310 - Intermediate Mechanics
- _____ (3) PHYS 360 - Quantum Mechanics
- _____ (3) PHYS 400 or 500 level courses

Accelerated Plan of Study – Year 1

Core Courses:

Fall (14 CR)

_____	(4)	BIOL 203 - Anatomy and Physiology I
_____	(3)	HSCI 312 - Radiation Science Fundamentals
_____	(2)	HSCI 313 - Principles of Radiation Detection and Measurement
_____	(3)	HSCI 526 - Principles of Health Physics and Dosimetry
_____	(2)	HSCI 574 - Medical Health Physics

Spring (15 CR)

_____	(4)	BIOL 204 - Anatomy and Physiology II
_____	(2)	HSCI 514 - Radiation Instrumentation Laboratory
_____	(3)	HSCI 540 - Radiation Biology
_____	(3)	HSCI 570 - Introduction to Medical Diagnostic Imaging
_____	(3)	HSCI 572 - Radiation Oncology Physics
_____	(0)	(HSCI 501) - AAPM Professional and Ethics Modules

ABR Exam, Part 1

Accelerated Plan of Study

YEAR 1

- FALL Semester

Oct-Dec **Register for ABR Part 1 (September 2, 2019 through December 1, 2019)**

See:

<https://www.theabr.org/medical-physics/initial-certification/part-1-exam>

https://www.theabr.org/wp-content/uploads/2017/06/CSD_IC_MP_2017_RandomAudit_Policy.pdf

YEAR 2

- SUMMER Semester

August **Take ABR Part 1 Exam**

Other

- Certificate Program in Medical Physics
- Viability of a DMP Program in collaboration with IUSM

Professional
Preparation/Residency

Professional Preparation/Residency

Year 1

FALL Semester

Step 0: (August) Acclimate to Purdue

MP Club

Visit Research Faculty/Project

AAPM (November)

- Become AAPM member (required)
- MP Club, meet the Presidents

@ORVC AAPM

- Sessions with Residency Directors/professionalism
- Mock ABR interviews/questions by Residency Directors

SPRING Semester

Step 1: (March) Local AAPM – Ohio River Valley Chapter

SUMMER

Step 2: (July-August) Annual AAPM Conference

@Annual AAPM Meeting

- AAPM Abstracts (Visibility)
- Sessions:
 - ABR Exam Preparation
 - Educational: review courses (ABR)
 - Residency mock interviews/meet the Directors (Res)
 - Breaking Out of the Clinic
 - Consider Certificate Course Series; SAM Credit (CV)
- Student and Trainee Events, e.g., Annual Student meeting, Non-Clinical Career Expo, Resident Fair, students and Trainees Night Out
- Alumni Dinner (networking)

Professional preparation/Residency

Year 2

FALL Semester

Step 3: (Sept-Oct) Prepare CV for residency or other job

- Prepare CV (faculty review)
- AAPM webpage (structure/information)
<https://www.aapm.org/careers/jobseekers/resources/resume/>
- Letters of Recommendation/Reference
- Personal Statement

Step 4: (Dec) MP Residency Matching, submit CV

AAPM Abstract

- Submitted and Accepted
- Topic of Discussion

SPRING Semester

Step 5: (Jan) Prepare to Graduate

Exit Strategy

- Ensure graduation on-time
- Do you have all the appropriate forms filled out?

Step 6: (Jan-March) Interview Preparation

Organize at Spring Student-Faculty Meeting w/MP Club

Preparing for Interviews

- Mock interviews with Therapy and Diagnostic faculty/clinical faculty
- Review AAPM information:
<https://www.aapm.org/careers/jobseekers/resources/interview/default.asp>

Step 7: (March-April) Prepare for Graduation

Exit Survey Residency

Professional preparation/Residency

Other professional activities

- Invite Faculty, Professionals, and Alumni to MP Club during the year
- Professional Development resources -- Purdue University (see below)

Dr. Sandison (Feb 17, 2020)
Dr. Cao (April 4, 2020)
Dr. Roth (TBD)

AAPM Abstract

- Submitted and Accepted
- Topic of Discussion

Clinical Experiences

Internships

HSCI 690 - Internship for Therapy Physics Competencies 1

2019			2020		
Spring	Summer	Fall	Spring	Summer	Fall
	(6)			(4)	
	Boria, A				
	Coyne, M				
	Zhang, X				
	Farley, N				
	Tabbasum, S				
	Nichols, M				

HSCI 690 - Internship for Therapy Physics Competencies 2

2019			2020		
Spring	Summer	Fall	Spring	Summer	Fall
(2)		(2)		(2)	
Almalki		Coyne, M		Tabbasum, S	
Neumann		Boria, A		Farley, N	

HSCI 674 - Radiological Diagnostic Imaging Physics Internship

2019			2020		
Spring	Summer	Fall	Spring	Summer	Fall
(3)			(3)		
Ostrowski, K			Voletry		
Almomen, F			Mahsa		
Alhulail, A					

** Looking for a student to help support/develop this internship ('unpaid TA')*

HSCI 672 – MRI QA Physics Internship See Dr. Dydak

2019			2020		
Spring	Summer	Fall	Spring	Summer	Fall
		Ostrowski, K			
		Almomen, F			
		Alhulail, A			

Memorial Medical Hospital



Dr. Scott Jones, PhD (Purdue Alumni)
Senior Medical Physicist

Where: Springfield, Illinois

When: Summer (full-time)

Format: mini-Residency

Summer: 1 or 2 volunteers

Diagnostic Imaging Physics Internship (6-CR)
Combines HSCI 672 and 674
and more

Fundamentals

- Digital Flat Panel X-ray; Fluoroscopy; CT; US; MRI
- QA equipment the same for CT, US, and MRI; comparable for x-ray and fluoroscopy
- Follow ABR/State requirements
- Some interaction with Radiologists

Differences:

- Clinical v Research Projects @Purdue/IUSM
- Advanced MRI/MRS @Purdue
- Breast mammography and Tomosynthesis (Hologic) @MMC
- Introduction to SPECT/PET @MMC
- Multiple sites, different vendors @MMC
- Clinical setting @MMC

Radiation Oncology Clinical/Research Opportunities

IUSM faculty;

Contact faculty directly and Dr. Yi Le, PhD, DABR

Purdue faculty;

Contact faculty directly and Dr. Keith Stantz

Email: yile@iu.edu

Office: 317-962-3388

CAMPEP Requires Research Project

(1) Specifics Aim Page

Step 1: Write and submit a 1-page document outlining your research project. The format follows NIH format

Introduction (research subject, significance, hypothesis, solution)

Aims (research strategy broken down into specific aims)

Summary (innovation, impact)

Submit to Director of MP

After your graduate committee has reviewed this document, submit to the Director of Medical Physics (Dr. Stantz)

(2) Research in Manuscript Form

Step 3: The research progress and accomplishments will be summarized in manuscript format (see Medical Physics Journal).

Submit to Director of MP

(Note: You may not have a completed manuscript that can be submitted to Medical Physics journal. The objective is to document your accomplishments, e.g., fill in what you have accomplished.)

<https://www.biosciencewriters.com/NIH-Grant-Applications-The-Anatomy-of-a-Specific-Aims-Page.aspx>

Projects

- If you want an email of these projects, please contact Dr. Stantz
 - Purdue faculty
 - IUSM Clinical Faculty

Open Discussion

Questions ?