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/r6K8Eup41UGTMyd6
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)

• 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:
- HSCI 312 - Radiation Science Fundamentals (3)
- HSCI 313 - Principles of Radiation Detection and Measurement (2)
- HSCI 514 - Radiation Instrumentation Laboratory (2)
- 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 (3)
- HSCI 574 - Medical Health Physics (2)
- HSCI 696 - Seminar in Health Sciences (initial student seminar) (1)
- GRAD 612 - Responsible Conduct in Research (1)
- (HSCI 501) - AAPM Professional and Ethics Modules (0)
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
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

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)

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

**SUMMER**
Step 2: (July-August) Annual AAPM Conference

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

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

@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

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

SPRING Semester
Step 5: (Jan) Prepare to Graduate

Step 6: (Jan-March) Interview Preparation
Organize at Spring Student-Faculty Meeting w/MP Club

Step 7: (March-April) Prepare for Graduation
Exit Survey Residency

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

AAPM Abstract
- Submitted and Accepted
- Topic of Discussion

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

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

Organize at Spring Student-Faculty Meeting w/MP Club
Professional preparation/Residency

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

AAPM Abstract
• Submitted and Accepted
• Topic of Discussion

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

**HSCI 690 - Internship for Therapy Physics Competencies 1**

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Boria, A  
Coyne, M  
Zhang, X  
Farley, N  
Tabbasum, S  
Nichols, M

**HSCI 690 - Internship for Therapy Physics Competencies 2**

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Almalki  
Coyne, M  
Tabbasum, S  
Neumann  
Boria, A  
Farley, N

**HSCI 674 - Radiological Diagnostic Imaging Physics Internship**

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Ostrowski, K  
Almomen, F  
Alhulail, A  
Voletry  
Mahsa

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

**HSCI 672 – MRI QA Physics Internship**

See Dr. Dydak

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Ostrowski, K  
Almomen, F  
Alhulail, A
Memorial Medical Hospital

Where: Springfield, Illinois

Summer: 1 or 2 volunteers

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

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

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

Where: Springfield, Illinois
When: Summer (full-time)
Format: mini-Residency

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

Summer: 1 or 2 volunteers
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.)

Projects

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

Questions?