

The Education Track PhD Program in Anatomy at Indiana University School of Medicine: A Decade Producing Anatomy Educator-Scholars



INDIANA UNIVERSITY
SCHOOL OF MEDICINE

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ABSTRACT

In 2008, the Indiana University School of Medicine (IUSM) admitted its first student to a newly approved PhD program focusing on anatomical education rather than biomedical research. The goal of the Education Track PhD program is twofold: (1) to provide students with extensive training in all of the anatomical sub-disciplines coupled with sufficient teaching experience to be fully prepared to assume major educational responsibilities upon graduation and (2) to train students to conduct rigorous, medical education research and other educational scholarship necessary for promotion and tenure. The 90-credit hour curriculum includes coursework in anatomy and other biomedical subjects, education, statistics, and electives. For their dissertation work, the students complete a research project about some aspect of medical education. As of December 2017, the Education Track program had admitted 23 students and produced 10 graduates. Two more students are anticipated to graduate by June 2018. All of the graduates were offered faculty appointments (8 tenure track and 2 non-tenure track) immediately upon graduation at major universities and medical schools. Four of the graduates were offered positions at IUSM. Eight graduates have appointments in medical school anatomy departments, 1 in a physical therapy department, and 1 in a physician assistant department. None of the graduates have been in their faculty positions long enough yet to have achieved tenure. During the period from 2009 through 2017, the students and graduates of the program gave 84 conference presentations and authored 47 peer-reviewed publications about anatomy or other aspects of medical education. Thus, in the 10 years since its inception, the Education Track program has successfully produced a small but stable supply of doctoral-level anatomy educator-scholars for a growing academic market.

BACKGROUND

As the research priorities of anatomy departments have shifted to emphasize cellular and molecular biology, the training of anatomy graduate students has followed suit. No longer are students typically required to learn and teach the traditional anatomical sub-disciplines to earn their PhDs. Paradoxically, a doctorate in anatomy no longer guarantees any expert knowledge of anatomy. As classically-trained anatomists retire and leave the workforce, they are not being replaced by newly-minted PhDs with the requisite training and career focus needed to maintain the teaching mission.

In 2008, we developed a separate “education track” as an alternative to our traditional research-based PhD program. This new track provides students who desire a career focus in education with extensive training in the anatomical sciences coupled with sufficient teaching experience to be fully prepared to assume major educational responsibilities upon graduation. Equally important, students in this track are trained to conduct rigorous educational research, culminating in a doctoral dissertation that meets the academic standards of Indiana University.

We report here a retrospective look at the Education Track PhD program 10 years after its inception.

THE CURRICULUM

TABLE 1: Curriculum of the Education Track PhD Program in Anatomy and Cell Biology at Indiana University

| Biomedical Courses (39 hours) |
|---|
| <ul style="list-style-type: none"> Human Structure (9) Molecules to Cells and Tissues (7) Neuroscience and Behavior (6) Fundamentals of Health and Disease (6) Anatomy Education Seminar (1); monthly seminar series on education-related topics; required enrollment each year (5 hours total, assuming a five-year degree completion time) Anatomy Teaching Practicum (2); supervised teaching in gross anatomy, neuroanatomy, and histology (repeated for 6 hours total) |
| Education Courses—Doctoral Minor (18 hours) |
| <ul style="list-style-type: none"> Pedagogical Methods in the Health Sciences (3) Instruction in the Context of Curriculum (3) Learning and Cognition in Education (3) Methodological Approaches to Educational Inquiry (3) Qualitative Inquiry in Education (3) One course selected from list of advanced education subjects (3) |
| Statistics Courses (6 hours) |
| <ul style="list-style-type: none"> Intermediate Statistics Applied to Education (3) Multivariate Analysis in Educational Research (3) |
| Electives and Research Credits (27 hours) |
| <ul style="list-style-type: none"> Electives (9 hours); additional courses in biomedicine, education, or statistics selected in consultation with student's advisory committee Dissertation Research (cr. arr.); sufficient to complete the 90-credit hour degree requirement |

ACADEMIC QUALIFICATIONS OF ENTERING STUDENTS

TABLE 2: Academic Degrees of 23 Students Who Entered the Education Track PhD Program in Anatomy and Cell Biology at Indiana University, 2008–2017

| Bachelor's Degrees ^a |
|--|
| Biology-Related Sciences or Health Professions (17) |
| Other Sciences (6) |
| Non-Sciences (5) |
| Master's Degrees |
| Human Anatomy (10) |
| Other Biology-Related Sciences or Health Professions (5) |
| Non-Sciences (2) |
| Doctoral Degrees |
| MD (1) |

^aSix of the entering students were dual majors or possessed two bachelor's degrees, giving 28 bachelor's degrees total.

PROGRAM GRADUATES

TABLE 3: Graduates of the Education Track PhD Program in Anatomy and Cell Biology at Indiana University, 2013–2017

| Name | Title | Institution |
|------------------------|--|--|
| J. Bradley Barger, PhD | Asst Prof of Cell, Develop & Integrat Biol | Univ of Alabama Birmingham Sch of Med |
| Jessica N. Byram, PhD | Postdoc Fellow, Dept of Anat & Cell Biol | Indiana Univ Sch of Med – Indianapolis |
| Keely Cassidy, PhD | Asst Prof of Genetics, Cell Biol & Anat | Univ of Nebraska Med Ctr in Omaha |
| Erin P. Fillmore, PhD | Biomedical Sen Lect | Univ of Buckingham Med Sch in England |
| Gerard M. Guillot, PhD | Asst Prof of Med Educ | Indiana Univ Sch of Med – Muncie |
| Katherine Henkin, PhD | Adjunct Asst Prof of Physical Therapy | Creighton Univ Sch of Pharm & Health Prof in Omaha |
| Leslie A. Hoffman, PhD | Asst Prof of Anat & Cell Biol | Indiana Univ Sch of Med – Fort Wayne |
| Courtney J. Lloyd, PhD | Asst Prof of Physician Assistant Studies | Univ of St. Francis in Ft. Wayne |
| Audra F. Schaefer, PhD | Asst Prof of Anat & Cell Biol | Indiana Univ Sch of Medi – Evansville |
| Adam B. Wilson, PhD | Assist Prof of Cell & Molec Med | Rush Univ Med Coll in Chicago |

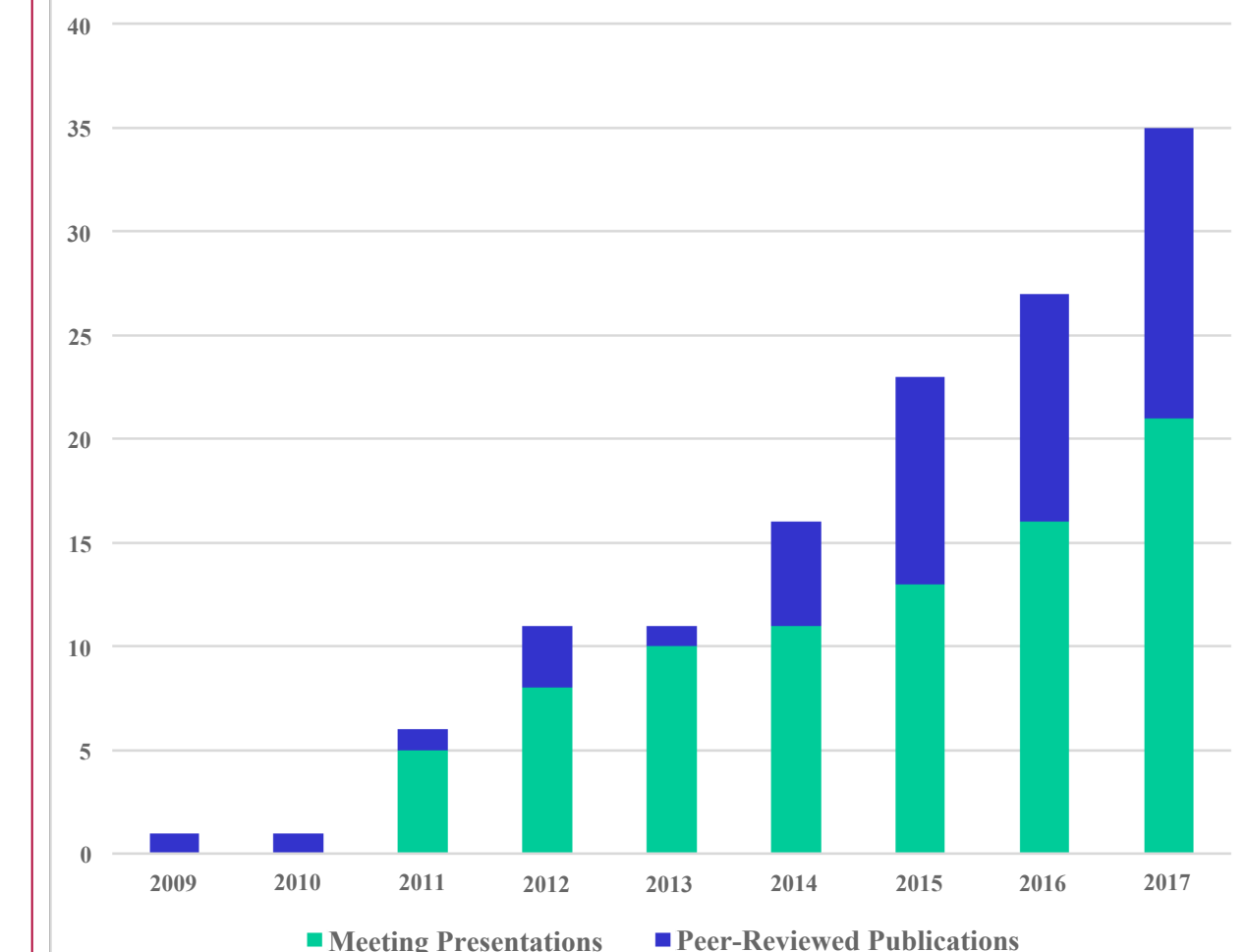
DISSERTATION TITLES

TABLE 4: Dissertation Titles of Students in the Education Track PhD Program in Anatomy and Cell Biology at Indiana University, 2013–2017

- Remediation Trends in an Undergraduate Anatomy Course and Assessment of an Anatomy Supplemental Study Skills Course (Audra F. Schutte, 2013)
- A Psychometric Evaluation of Script Concordance Tests for Measuring Clinical Reasoning (Adam B. Wilson, 2013)
- Understanding Interprofessional Education: A Multiple Case Study of Students, Faculty, and Administrators (Katherine Henkin, 2013).
- An Exploration of Reflective Writing and Self-Assessments to Explain Professionalism Lapses Among Medical Students (Leslie A. Hoffman, 2014)
- Does time matter? A search for meaningful medical school faculty cohorts (Gerard M. Guillot, 2014)
- Grit and Beliefs About Intelligence: The Relationship and Role These Factors Play in the Self-Regulatory Processes Involved in Medical Students Learning Gross Anatomy (Erin P. Fillmore, 2015)
- Visual Literacy in Anatomy Students (J. Bradley Barger, 2016)
- Embryology in Medical Education: A Mixed Methods Study and Phenomenology of Faculty and First Year Medical Students (Keely M. Cassidy, 2016)
- “Do I Really Have to Complete Another Evaluation?” Exploring Relationships Among Physicians' Evaluative Load, Evaluative Strain, and the Quality of Clinical Clerkship Evaluations (Courtney J. Traser, 2017)
- The Professionalization of Medical Students: A Longitudinal Analysis of Professional Identity Formation and Professionalism Perceptions in Second and Third Year Medical Students (Jessica N. Byram, 2017)
- Changes to Student Perceptions and Student Learning with the Implementation of Reciprocal Peer Teaching and Self-Directed Learning in the Gross Anatomy Laboratory: A Mixed Methods Study (Stacey M. Dunham, in progress)
- Exploring the Impact of Simulated Clinical Experience on Competence and Self-Efficacy in Medical Education: A Case Study of a High-Fidelity Simulation Center (Barbie A. Klein, in progress)
- The Impact of Medical Education Reform on the Teaching and Learning of the Anatomical Sciences (Melissa A. Taylor, in progress)

SCHOLARLY PRODUCTIVITY

FIGURE 1: Presentations and Publications of Education Track Students and Graduates, 2009–2017



NEW DIRECTIONS

Until 2018, students accepted into the Education Track Program were assigned to either the main medical campus at Indianapolis or the Medical Sciences Program on the IU Bloomington campus.

We are pleased to announce that the Medical Sciences Program has been granted approval to offer its own Education-Track PhD Program separate from Indianapolis. Therefore, going forward, the Education Track PhD Programs at Indianapolis and Bloomington will be distinct programs that operate independently.

Together, these two programs will amplify our ability to produce anatomy educator-scholars for a growing academic market.

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