INTEGRATED AND APPLIED SCIENCES, PH.D.

Saint Louis University's Integrated and Applied Sciences (IAS) doctoral program was established to broaden student exposure to all areas of science, encourage collaboration across departments and colleges, and better train graduate students to present their research to a more diverse audience.

Program Highlights

The Health Sciences concentration prepares students to become scholars and researchers within academic, clinical research, and practice settings by conducting interdisciplinary studies of biological, behavioral, psychosocial and environmental aspects of human health. Required courses are taken in Doisy College of Health Sciences (https://www.slu.edu/doisy/).

Curriculum Overview

Saint Louis University's Doctor of Philosophy in Integrated and Applied Sciences (IAS) utilizes interdisciplinary approaches and collaboration within the fields to prepare graduates to confidently assume multi-faceted roles in the changing scientific community.

The distribution of courses in the various IAS areas is determined by the student's dissertation committee with a minimum total of 30 credits between all three areas. A total of 42 credits are required with the remaining 12 credits coming from dissertation credits. An appropriate coursework track is developed by the student and their mentor with subsequent approval by the IAS administrative committee. A typical coursework structure includes:

- Participating departmental core courses (9–12 credits)
- Interdisciplinary credits (18–21 credits)
- Dissertation credits (12 credits)

Fieldwork and Research Opportunities

This research-intensive doctoral program will train students for careers in pharmaceutical and biochemical industries, as well as in academia. The program's scientific training takes place in an interdisciplinary environment with biology, biomedical science, chemistry, earth and atmospheric science, engineering, health sciences, and physics faculty.

Careers

This doctoral program trains scientists for careers in academia in health sciences and prepares them to collaborate with other professionals. Scientific training takes place in an interdisciplinary environment with faculty from science departments in SLU's College of Arts and Sciences (https://www.slu.edu/arts-and-sciences/), School for Science and Engineering and Doisy College of Health Sciences (https://www.slu.edu/doisy/).

Admission Requirements

The integrated and applied sciences administrative committee will ensure that the applicant possesses a minimum of a baccalaureate degree from an accredited, recognized college or university in a discipline relevant to the research of the integrated and applied sciences faculty mentor.

Application Requirements

- Application form and fee
- Transcript(s)
- Three letters of recommendation
- Curriculum vitae
- Professional goals statement

Requirements for International Students

All admission policies and requirements for domestic students apply to international students. International students must also meet the following additional requirements:

- Demonstrate English Language Proficiency
- Financial documents are required to complete an application for admission and be reviewed for admission and merit scholarships.
- Proof of financial support that must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the student's time at Saint Louis University
  - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of the student's study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include:
  - Courses taken and/or lectures attended
  - Practical laboratory work
  - The maximum and minimum grades attainable
  - The grades earned or the results of all end-of-term examinations
  - Any honors or degrees received.

WES and ECE transcripts are accepted.

Review Process

The integrated and applied sciences administrative committee will ensure that the applicant's previous academic record indicates the ability needed to pursue advanced studies. The committee will then make an admissions recommendation to the graduate admissions department, which is responsible for making the final decision and communicating that decision to both the integrated and applied sciences program director and the applicant.

Scholarships, Assistantships and Financial Aid

For priority consideration for a graduate assistantship, apply by the program admission deadlines listed. Fellowships and assistantships provide a stipend and may include health insurance and a tuition scholarship for the duration of the award.

For more information, visit https://www.slu.edu/financial-aid (https://www.slu.edu/financial-aid/).

Learning Outcomes

1. Graduates will be able to use scientific principles underpinning the primary scientific discipline in which their concentration is based and by applying basic research methodology, demonstrate their application to their particular field of interest (chemistry, biology, physics, environmental science, sustainability science).

2. Graduates will be able to demonstrate advanced creativity in scientific research methodology in their concentration and appropriately use techniques in a laboratory and/or field setting – including experimental, theoretical, and computational methods.
3. Graduates will be able to integrate methods, theories, paradigms, concepts etc. from more than one discipline.
4. Graduates will be able to demonstrate an ability to communicate (oral and written) results and conclusions from their research, describe techniques and methodology used, and apply their experiences in the greater world in which we live.

Requirements

Code	Title	Credits
Required Courses		
IAS 6010	Interdisciplinary Seminar (taken over multiple semesters)	4
IAS 6030	Interdisciplinary Research (taken over multiple semesters)	8
Health Science Concentration Courses		**18**
Health Sciences Concentration (p. 2)		
Dissertation Research		
IAS 6990	Dissertation Research (taken over multiple semesters)	12
Total Credits		**42**

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Concentration Core Department (9-12 credits), Concentration Interdisciplinary credits (6–9 credits)

Non-Course Requirements

Assuming successful completion of oral and written comprehensive exams, students should complete the Ph.D. program in four to five years. Students entering the program with an appropriate M.S. degree may complete the program in less time, again assuming successful completion of oral and written comprehensive exams.

Continuation Standards

Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses.

Health Sciences Concentration

Code	Title	Credits
Concentration Core Department		
HSCI 6200	Seminar in Health Sciences Research	1
Choose remaining concentration core department courses from among:		8-11
BLS 5125	Introduction to Clinical Laboratory Medicine	
SLHS 5450	Speech Sound Disorders in Children	
SLHS 5510	Social Communication Development and Disorders	
SLHS 5550	Early Childhood Language Disorders	
SLHS 5560	School-Age Language Disorders	
SLHS 5630	Dysphagia	
SLHS 5700	Voice Disorders	
SLHS 5710	Cleft Palate and Craniofacial Anomalies	
SLHS 5720	Neurogenic Communication Disorders in Adults	
SLHS 5760	Motor Speech Disorders	
SLHS 5770	Multicultural Assessment and Management of Communication Disorders	
SLHS 5820	Cognitive Communication Disorders	
DIET 5010	Survey of Nutrition for Allied Health Professionals	
DIET 5030	Sustainable Food Systems	
DIET 5050	Food Processing:Farm to Institution	
DIET 5060	Maternal and Child Nutrition and Health	
DIET 5070	Culinary Medicine	
DIET 5100	Human Nutrition: Physiology and Metabolism I	
DIET 5130	Human Nutrition: Physiology and Metabolism II	
DIET 5210	Pediatric Nutrition	
DIET 5220	Gerontological Nutrition	
DIET 5300	Community Nutrition	
DIET 5480	Nutrition Education and Counseling	
DIET 5550	Nutr. & Physical Performance	
DIET 5690	Bioenergetics of Exercise	
DIET 5700	Exercise Testing And Prescription	
DIET 5750	Gastronomy	
DIET 5870	Seminar in Dietetics Research	
DIET 5980	Graduate Reading Course	
MOT 5150	Kinesiology	
MOT 5250	Policy & Administration	
MOT 5300	Fundamentals of OT Practice	
MOT 5400	Occupational Therapy for Adults with Physical Dysfunction	
MOT 5410	Occupational Therapy in Mental Health	
MOT 5450	Occupational Performance & Assessment of Children and Youth	
MOT 5550	Occupational Therapy for Adults with Neurological Dysfunction	
MOT 5560	Occupational Therapy and Community Practice	
MOT 5980	Independent Study	
OCTH 5010	Foundations of Occupational Therapy: Theories, Domains and Processes	
OCTH 5011	Fundamentals of Occupational Science	
OCTH 6100	Occupational Science in Practice and Society	
OCTH 6200	Professional Leadership and Public Policy	
OCTH 6300	Conceptualizations and Applications of Occupational In/Justice	
OCTH 6930	Special Topics	
OCTH 6980	Independent Study in Occupational Therapy	
DPT 5123	Clinical Gait	
DPT 5142	Evidence Based Practice	
DPT 5149	Applied Neuroscience	
DPT 5218	Effective Communication and Teaching	
DPT 5930	Special Topics	
DPT 5980	Independent Study	
DPT 6124	Biomechanical Interventions	
DPT 6178	Applied Administration and Management	
DPT 6930	Special Topics	
DPT 6980	Independent Study	
MAT 5100	Kinesiology	
MAT 5133	Lab Studies and Imaging	

MAT 5160	Aspects of Nutrition	
MAT 5620	Psychology of Sport and Injury	
MAT 5650	Research in Athletic Training	
MAT 6160	Enhancing Human Performance	
MIT 6100	Masters Seminar II	
PAED 5300	Evidence-Based Medicine	
Concentration Interdisciplinary Courses		**6-9**
BME 5150	Brain Computer Interface	
BME 5210	Human Movement Biomechanics	
BME 5320	Drug Delivery	
BME 5400	Tissue-Material Interfaces	
BME 5410	Tissue Engineering	
BME 5420	Tissue Engineering Scaffold Fabrication Techniques	
BME 5430	Regenerative Engineering	
BME 5600	Quantitative Physiology I	
BME 5650	Quantitative Physiology II	
CHEM 5440	Bioorganic Chemistry	
CHEM 5610	Biochemistry 1	
CHEM 5615	Biochemistry 2	
CHEM 5620	Biophysical Chemistry	
CHEM 5630	Introduction to Chemical Biology and Biotechnology	
CVNG 4190	Sustainable Land Development Engineering	
CVNG 5260	Environmental Solutions in Developing Countries	
CVNG 5450	Traffic Engineering	
CVNG 5470	Urban Transportation Planning	
MATH 5021	Introduction to Analysis	
MATH 5023	Multivariable Analysis	
MATH 5080	Probability Theory	
ORES 5010	Introduction to Biostatistics for Health Outcomes	
ORES 5150	Multivariate Analysis for Health Outcomes Research	
ORES 5300	Foundations of Outcomes Research I	
ORES 5430	Health Outcomes Measurement	
ORES 5100	Research Methods in Health & Medicine	
Total Credits		**15-21**

Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

Course	Title	Credits
Year One		
Fall		
Core Course		3
	Credits	**3**
Spring		
Core Course		3
	Credits	**3**
Summer		
Core or Interdisciplinary Course		3
	Credits	**3**
Year Two		
Fall		
Core or Interdisciplinary Course		3
	Credits	**3**
Spring		
Core or Interdisciplinary Course		3
	Credits	**3**
Summer		
Core or Interdisciplinary Course		3
	Credits	**3**
Year Three		
Fall		
IAS 6010	Interdisciplinary Seminar	1
IAS 6030	Interdisciplinary Research	2
IAS 6990	Dissertation Research	3
	Credits	**6**
Spring		
IAS 6010	Interdisciplinary Seminar	1
IAS 6030	Interdisciplinary Research	2
IAS 6990	Dissertation Research	3
	Credits	**6**
Summer		
IAS 6990	Dissertation Research	3
	Credits	**3**
Year Four		
Fall		
IAS 6010	Interdisciplinary Seminar	1
IAS 6030	Interdisciplinary Research	2
IAS 6990	Dissertation Research	3
	Credits	**6**
Spring		
IAS 6010	Interdisciplinary Seminar	1
IAS 6030	Interdisciplinary Research	2
	Credits	**3**
	Total Credits	**42**

Program Notes

- Core courses are defined as lecture or lab course offered in concentration home department.
- Interdisciplinary courses are defined as lecture or lab course offered outside of concentration home department.

Contact Us

For more information about our program, please contact:

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