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 multifaceted 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 http://www.slu.edu/financial-aid (http://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

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IAS 6010</td>
<td>Interdisciplinary Seminar (taken over multiple semesters)</td>
<td>4</td>
</tr>
<tr>
<td>IAS 6030</td>
<td>Interdisciplinary Research (taken over multiple semesters)</td>
<td>8</td>
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Health Science Concentration Courses 18

Health Sciences Concentration (p. 2)

Dissertation Research

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>IAS 6990</td>
<td>Dissertation Research (taken over multiple semesters)</td>
<td>12</td>
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</tbody>
</table>

Total Credits 42

† 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HSCI 6200</td>
<td>Seminar in Health Sciences Research</td>
<td>1</td>
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</table>

Choose remaining concentration core department courses from 8-11 among:

- 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
Integrated and Applied Sciences, Ph.D. 2022-2023

Course | Title | Credits
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MAT 5160 | Aspects of Nutrition | 3
MAT 5620 | Psychology of Sport and Injury | 3
MAT 5650 | Research in Athletic Training | 3
MAT 6160 | Enhancing Human Performance | 3
MIT 6100 | Masters Seminar II | 3
PAED 5300 | Evidence-Based Medicine | 3

**Concentration Interdisciplinary Courses** 6-9 Credits

BME 5150 | Brain Computer Interface | 3
BME 5210 | Human Movement Biomechanics | 3
BME 5320 | Drug Delivery | 3
BME 5400 | Tissue-Material Interfaces | 3
BME 5410 | Tissue Engineering | 3
BME 5420 | Tissue Engineering Scaffold Fabrication Techniques | 3
BME 5430 | Regenerative Engineering | 3
BME 5600 | Quantitative Physiology I | 3
BME 5650 | Quantitative Physiology II | 3
CHEM 5440 | Bioorganic Chemistry | 3
CHEM 5610 | Biochemistry 1 | 3
CHEM 5615 | Biochemistry 2 | 3
CHEM 5620 | Biophysical Chemistry | 3
CHEM 5630 | Introduction to Chemical Biology and Biotechnology | 3
CVNG 4190 | Sustainable Land Development Engineering | 3
CVNG 5260 | Environmental Solutions in Developing Countries | 3
CVNG 5450 | Traffic Engineering | 3
CVNG 5470 | Urban Transportation Planning | 3
MATH 5021 | Introduction to Analysis | 3
MATH 5023 | Multivariable Analysis | 3
MATH 5080 | Probability Theory | 3
ORES 5010 | Introduction to Biostatistics for Health Outcomes | 3
ORES 5150 | Multivariate Analysis for Health Outcomes Research | 3
ORES 5300 | Foundations of Outcomes Research I | 3
ORES 5430 | Health Outcomes Measurement | 3
ORES 5100 | Research Methods in Health & Medicine | 3

**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.

**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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