Recruitment 2020
Welcome to the University of Georgia! Go dawgs! This is a reference guide for all things IPS, UGA, and Athens.

Students joining UGA through Integrated Plant Sciences (IPS) conduct cutting-edge plant- and fungal-related research on topics with applications to society and the environment. There are many opportunities in plant science at UGA within the IPS program.

IPS is the portal through which students can specialize in a broad range of research topics including:

- Bioinformatics
- Breeding
- Genetics
- Genomics
- Physiology
- Evolution
- Ecology
- Fungal Biology
- Molecular Biology
- Plant-Microbe Interactions

Research scales can be molecular, cellular, organismal, or ecological.

IPS interacts with participating graduate programs and the Plant Center to provide the following overall graduate experience:

- PhD training in interdisciplinary plant research areas
- Customized research specializations
- Competitive financial support
- Plant-focused seminars, retreats and symposia
- A highly interactive plant sciences community spanning basic and applied research questions
IPS Program Information

IPS is a recruitment portal for the plant sciences at UGA. **All requirements for IPS are in the 1st semester**, until the student negotiates a lab and home department. After this, the student will follow the requirements of their chosen department.

**IPS covers 9 PhD graduate programs (departments):**

- Biochemistry and Molecular Biology
- Genetics
- Horticulture
- Institute of Bioinformatics
- Institute for Plant Breeding, Genetics, and Genomics
- Microbiology
- Plant Biology
- Plant Pathology
- Warnell School of Forestry and Natural Resources

**1st semester requirements:**

1. Students perform **three** 6-week lab rotations with any IPS faculty
2. Students take:
   - Responsible Conduct of Research seminar
   - Professional Skills seminar
   - A formal content course

**Funding:**
Students receive research assistantships for the first semester, based on an annual stipend of $28,000. After the first year, the stipend is set according to the student’s home department. Students are guaranteed funding for 5 years.
IPS students will take **one** of these courses in the first semester:

### Biological Content:
- **HORT/CRSS 6430, Plant Physiology** – Basic principles of plant physiology
- **HORT 8150, Plant Growth and Development** – Physiological processes of growth, development, and environmental effects
- **PBGG/CRSS/HORT 6140, Plant Breeding** – Fundamental principles and theories for plant breeding and cultivar development
- **PATH/PBIO 6200/6200L, Mycology** – The biology, ecology, genetics, morphology, and taxonomy of fungi
- **PBIO 6720, Plant Variation and Evolution** - Conceptual basis and empirical approach for understanding genetic processes and patterns in natural plant populations
- **PBIO 8100, Advanced Plant Genetics** – Advanced course in plant genetics and genomics

### Quantitative Skills:
- **STAT 6315, Statistical Methods for Researchers** – Basic statistical methods
- **FANR 6750-6750D, Experimental Methods in Forestry and Natural Resources** – Research methods for constructing and analyzing designed experiments
- **STAT 8200, Design of Experiments for Research Workers** – Methods for constructing and analyzing designed experiments
- **BINF 8500, Algorithms in Bioinformatics** – Bioinformatics algorithm design and implementation
- **GENE/BINF 8940, Applied Genome Analysis** – Bioinformatics approaches for whole genome analyses
IPS Faculty and Student Awards

IPS is marked by exemplary scholarship in research by both faculty and students.

Faculty:
- Faculty have received $20+ million in active grants
- 10 current faculty are American Association for the Advancement of Science Elected Fellows
- 1 National Academy of Science member
- 2 have won NSF Career Grants
- 3 are Fulbright Scholars
- 4 are UGA Distinguished Research Professors
- 7 have won a UGA Creative Research Medals

Graduate students (since 2012):
- 7+ students received NSF Graduate Research Fellowships
- 6+ received NSF Doctoral Dissertation Improvement Grants
Notable Alumni

Alumni have gone on to become leaders in research, teaching, government, and industry positions.

**Michael Purugganan** (PhD, Plant Biology 1993)
- Silver Professor of Biology and Dean for Science at New York University
- Served on the Council of Scientists of the Human Frontier Science Program
- Biological Sciences Advisory Committee for the US National Science Foundation
- Guggenheim Fellowship

**William Carromero** (PhD, Plant Biology 2004)
- US Forest Service National Botanist

**Carolyn Lawrence-Dill** (PhD, Plant Biology 2003)
- Associate Professor in Genetics, Development, & Cell Biology at Iowa State
- Served as lead scientist for the USDA-ARS MaizeGDB project

**Jenny Cruse-Sanders** (PhD, Plant Biology 2003)
- Director of the State Botanical Garden of Georgia
- Director of Research and Conservation at the Atlanta Botanical Garden

**Jeff Ross-Ibarra** (PhD, Genetics 2006)
- Professor in the Department of Plant Sciences at UC Davis
- Winner of the Presidential Early Career Award for Scientists and Engineers

**Chris Topp** (PhD, Plant Biology 2009)
- Assistant Member, Donald Danforth Plant Science Center
**Key Places:**

- **The Science Learning Center (SLC):** Teaching labs, coffee & bagel shop
- **Riverbend Greenhouse Complex:**
- **The Complex Carbohydrate Research Center (CCRC):** Many IPS faculty are housed here
- **Miller Plant Sciences:** Home to Horticulture, Plant Biology, and Plant Pathology
- **Davison Life Sciences:** Home to Genetics and Biochemistry
- **Warnell School of Forestry & Natural Resources:** Home to Forestry
- **The Center for Applied Gene Technology (CAGT):** Home to the Institute of Plant Breeding, Genetics and Genomics (IPBGG)
IPS Student Associations

Each IPS-affiliated department has a graduate student organization that provides opportunities for social events and academic enrichment to enhance the graduate experience.

Students from these departments often co-sponsor events and interface at The Plant Center.

Some past events include holiday parties, retreats, bowling, journal clubs, a fun run, and alumni talks.
Questions to ask a potential advisor:

- Are you taking rotation students in the fall or full time students in the spring?
- How do you usually support your students financially?
- What expectations do you have for your students in terms of research development, publishing papers, teaching, and securing their own funding?
- What is the average graduation time for students in your lab and where are they now?

Tips when deciding on a program:

- Ask questions! Don’t be afraid to ask questions to anyone and everyone.
- While considering an advisor, also consider the lab environment. Talk to the graduate students, postdocs, staff, etc. of that lab.
- Advisor, lab, department, project, and school are important, but don’t forget that you’re potentially living in a new place for ~5 years. Is Athens a place you’d like to be?
Teaching at UGA

UGA has a strong focus on teaching, promoting excellence and innovation. In addition to abundant resources for instructors, there are opportunities for scholarship and research in teaching. Most IPS students will have the opportunity to develop teaching and communication skills.

Bioscience Learning Center - Computer lab, MediaScape collaboration stations, instructional equipment

Center for Teaching and Learning - Supports instructors campus-wide by providing activities planning, consultations, teaching resources, and workshops. Presents awards for excellent and innovative teaching

Greenhouse Teaching Collection - A variety of tropical plants, cacti and succulents, seedless vascular plants, cycads, carnivorous plants, and orchids are available

Scientists Engaged in Education Research - Facilitates cutting-edge research in STEM education through multi-disciplinary interactions and research collaborations between a community of scientists, provides opportunities to share research

“UGA provided great opportunities to learn about and engage in modern teaching methods and techniques, leaving me with invaluable experience for my current position at a teaching-oriented small university.”
- Alex Pilote, PhD, 2017
  Assistant Professor at Tennessee Wesleyan University
Certificates

Graduate students have the opportunity to pursue a variety of certificates with core content training and skills development. These are just a few that may interest IPS students:

**Interdisciplinary Certificate in University Teaching** - Enhances teaching skills and provides a credential that should enhance opportunities for academic employment. Requirements include four sections of teaching at UGA, selected coursework, a teaching project, evidence of scholarship of teaching, and teaching portfolio.

**Bioinformatics** - Coursework that prepares a student to interface with biology and computer science/statistics.

**Conservation Ecology and Sustainable Development** - Interdisciplinary preparation to handle the unique, multi-disciplinary problems associated with working in the area of conservation and sustainable development.

**Geographic Information Science** - Advanced training for the rapidly expanding field of GIS, students will learn geospatial concepts and skills in geographic data collection and analysis that may increase research and employment opportunities. In addition to coursework, an internship or independent study is required.

**Sustainability** - Develop skills to make significant, systemic changes in communities, paving the way for a more sustainable future. Coursework, a capstone project, and a reflection portfolio are requirements for this certificate.
There are so many opportunities for science outreach at UGA. These are just a few that IPS students have participated in.

“The Athens Science Alliance contains the Athens Science Café and Athens Science Observer. They provide wonderful opportunities for faculty and students to engage with the community and communicate their science to the public.”

- Mason McNair

“In Project Focus, I visited a middle school science classroom three days a week for a semester, designing hands-on activities and leading class lecture and discussions. The kids were avid learners, and it was a wonderful learning experience for me, the students, and their teacher.”

- Callie Oldfield

“As Managing Editor in Sciences at The Classic Journal, I review UGA students’ scientific research, giving them insight in the publishing process and offering suggestions and revisions to their work.”

- Patrick Smallwood
UGA Facilities and Services:

There are many research spaces and analytical services available on campus, including:

**Bio-imaging Research Center**
Biological tissue imaging technologies

**Biomedical Microscopy Core**
Confocal and traditional microscopes and filters

**Complex Carbohydrate Center Services**
Mass spectrometry, NMR, chromatography, glycosyl residue composition & linkage, site of protein glycosylation, glycome profiling

**Georgia Advanced Computing Resource Center**
High-performance computing and networking infrastructure

**Georgia Electron Microscopy**
Transmission and scanning electron microscopy, X-ray fluorescence

**Georgia Genomics and Bioinformatics Core**
Core laboratory for state of the art nucleic acid sequencing and bioinformatics

**Greenhouse Complex**
Space for research and teaching, growth chambers

**UGA Herbarium**
Over 230,000 sheets of vascular plants with an emphasis on plants from the Southeast, particularly Georgia

**Field Research Facilities and Opportunities:**
Savannah River Ecology Laboratory
Marine Institute on Sapelo Island
Network of 6+ University research farms
Coweeta Hydrologic Laboratory
State Botanical Garden
Costa Rica Campus
Museum of Natural History
River Basin Center
The Plant Center aims to enhance the tradition of outstanding research in plant molecular biology and genetics at the University of Georgia.

The center brings together plant scientists through an annual retreat, seminars, and symposia to share research and promote the plant community here at UGA. Many IPS faculty and their students are members of The Plant Center.

“The Plant Center enriches my research by re-energizing and re-focusing my ideas and approach to plant biology.”

– Josh Clevenger
Athens has many distinctive neighborhoods (above) and historic areas with a lower cost of living than the national average. IPS students live in houses or apartments all around campus - some of their favorite neighborhoods include:

**Five Points** - right next to campus, you can grab a cup of coffee at Jittery Joe’s or enjoy fish tacos at Cali ‘N Titos

**Normaltown** - go for trivia at Hi-Lo Lounge or visit The Grit

**Chicopee-Dudley** - visit Trail Creek Park or brunch at Mama’s Boy in this quaint neighborhood

Ask around for other favorite living areas!

“The Classic City” is a cultural hub in the southeast with a flair for the arts. Renowned for its music scene, Athens is home to REM and the B-52s and venues such as the 40 Watt Club and Georgia Theater. Downtown Athens has an abundance of food and nightlife, and was named as a Historic District on the National Register of Historic Places.

**Athens Accolades**

"Best College Football Towns in America" (ranked #2), *USA Today Sports*

"12 Best Music Towns in the Nation," *Expedia*

"Underrated food cities in the south," *USA Today*

"Best Places to Retire in 2017," *Forbes*

"The 24 coolest towns in the USA" (ranked #1), *Matador Network*

UGA and Athens buses are free for students! - though many ride bikes to campus or carpool. The air quality index of Athens is 21% better than the national average! (Source: *AreaVibes*)

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Ask around for other favorite living areas!

“My mother was deeded all land within 8 ft of her trunk, and I was planted after she passed.”

- *The Tree that Owns Itself*
Brunch? Eat at *Mama’s Boy* (left) – the best breakfast in Athens! Other options include homemade pastries at *Big City Bread* or dishes made with local ingredients at *Heirloom Café* and *The National* - or make your own with veggies from the *Farmers Market*.

Enjoy a freshly baked pizza outside surrounded by hanging lights at *Ted’s Most Best*. If you’re looking for a nice place to have coffee in the day or a beer at night, try *Hendershot’s*, *1000 Faces*, or *Walker’s*. You won’t believe it’s vegetarian at *The Grit* – it’s that good! If you’re craving some BBQ, try *Saucehouse BBQ* for great ribs, homemade sauce, and sides.

**Entertainment & fun:**

- *Georgia Theatre* (top) – The local theatre is home to local musicians and acts/concerts that come through town. Its rooftop bar has live shows weekly!

- *Rook and Pawn* (right) – Athens’ newest board and brew game café is fully stocked with any tabletop game you can imagine

- *ARTini’s* – Paint a masterpiece led by a certified instructor... and drink wine while you do it!

- *Escape the Space* – Challenge yourself and a group of friends to a timed room puzzle

- *UGA Football* – We live for football. We live to tailgate. GO DAWGS!

- *Classic City Rollergirls* – Roller derby like you’ve never seen before!

**Local Breweries:**

*Creature Comforts* (above) is a chill place to go downtown for a few cold beers and good conversation. *Southern Brewing Company* and *Akademia* are the newest, with a great indoor/outdoor scene. Finally, a local favorite, *Terrapin* has weekly events and live music in their large outdoor area.
More in Georgia

Get outdoors in Athens!

- State Botanical Garden – enjoy the observatory, cafe, gardens, and hiking trail at this must-see spot!

- Bear Hollow Zoo – a free park with Georgia wildlife, adjacent to a Memorial pool (pond) and dog park

- Sandy Creek Nature Center – explore woodlands and wetlands or stop by the visitor’s center to view aquariums and natural history exhibits

- Tallulah Falls – about an hour from Athens, hike the trails to an overlook and visit the Victorian resort town

Admire Athens Art:

- Georgia Museum of Art – new exhibitions every few months and a stunning permanent collection

- Lyndon House Arts Center – visit free exhibits, attend art classes, and explore the historic house connected to the gallery

Atlanta (~90 min away):
  • Atlanta Botanical Garden
  • Georgia Aquarium
  • World of Coke
  • High Museum of Art
  • IKEA
  • Zoo Atlanta

Savannah (~3.5 hours away)
Chattanooga (~3 hours away)
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Abbreviations:
BMB. = Biochemistry and Molecular Biology
CCRC = Complex Carbohydrate Research Center
Ecol. = Ecology
Hort. = Horticulture
IPBGG = Institute of Plant Breeding, Genetics, and Genomics
IoB = Institute of Bioinformatics
Micro = Microbiology
PBio = Plant Biology
Plant Path. = Plant Pathology
Warnell = Warnell School of Forestry and Natural Resources