Cold Spring Harbor Laboratory
SCHOOL OF BIOLOGICAL SCIENCES

2024-25 Ph.D. Program

COLD SPRING HARBOR LABORATORY ADMINISTRATION

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ACCREDITATION

Cold Spring Harbor Laboratory's School of Biological Sciences is accredited by the New England Commission of Higher Education (formerly the Comission on Institutions of Higher Education of the New England Association of Schools and Colleges, Inc.), ocated at 301 Edgewater Place, Suite 210, Wakefield, MA 01880, (781) 425 - 7785.

The following graduate degree programs are offered by the School of Biological Sciences. These programs have been approved by the New York State Education Department and are listed in the Inventory of Registered Programs http://www.nysed.gov/heds/IRPSL1.html.

Institution name - COLD SPRING HARBOR LAB
Program title: Biological Sciences
Program codes: 21709 (PhD) & 21710 (MS)
HEGIS: 0401.00

Our Mission

Since 1890, Cold Spring Harbor Laboratory (CSHL) has been a global leader in research and education. The international scientific community at CSHL provides a unique and stimulating atmosphere for doctoral research—an environment where students, postdoctoral fellows, and faculty work side-by-side. The School of Biological Sciences was founded on the belief that with well thought-out mechanisms, enthusiastic involvement of faculty, and highly motivated students, an innovative curriculum could be provided that would allow students to earn a doctoral degree in a shorter time than in traditional programs without compromising the quality of their training. The curriculum is designed to train students to become scholars and independent thinkers.

Our mission is to:
- Prepare students to face the ever-changing cutting-edge of biological and biomedical research with the necessary skills to become leaders in science and society.
- Enable students to complete their Ph.D. in an accelerated timeframe, while maintaining the highest standards of excellence.
- Impart a broad, multi-disciplinary, representation of the biological sciences.
- Teach students how to think independently and critically focusing on the principles of scientific reasoning and logic.
- Educate ethical biologists who can communicate effectively with all audiences.
- Emphasize that learning is a lifelong process that goes hand-in-hand with outstanding research.
- Facilitate the pursuit of significant, independent thesis research.

To accomplish these goals the following unique features drive the program:
- Separate course work and laboratory rotations into separate phases in the first year of training.
- Extensive student mentoring through a “two-tier” mentoring program.
- Financial support from the program, which serves to uncouple the funding source from graduate education.
- A student body from many nationalities and educational backgrounds.
- A unique environment, which includes a world-class scientific Meetings & Courses program, providing the opportunity to meet and learn from leaders in science.

A Unique Doctoral Program Putting Students First

More than 20 years ago, Cold Spring Harbor Laboratory began an experiment to re-envision doctoral training in the biological sciences. Enriched by more than 100 years of scientific research and education on the idyllic north shore of Long Island, our unique and exciting doctoral program welcomed its first six students in the fall of 1999. Now, after nearly 150 Ph.D. degrees awarded (my own included), the results of the experiment are in. The CSHL School of Biological Sciences' innovative Ph.D. training method is a resounding success, reflected by the success of our alumni in their diverse careers in biosciences. The open secret to our success? Our students come first.

With our students and their individual goals at the forefront, our School streamlines and enhances all aspects of Ph.D. training beyond what you would normally find in a conventional program.

- *Emphasis on student mentoring with* a *two-tier mentoring program* consisting of an academic mentor who supports the student from the early months of the program in addition to the traditional research thesis mentor
- *Diverse and integrated coursework* to develop critical skills in scientific reasoning, written and oral communication, and training in individual and shared core principles of biology
- *Financial support* through the School for the first four years, allowing students the flexibility to join whichever lab they choose
- *Small class sizes* allow for unprecedented levels of support, with School administration scheduling bi-annual thesis meetings and removing the logistical burden from the students
- *Access to world-renowned, year-round Meetings & Courses* that provide the opportunity to network with thousands of visiting scientists

I could go on, including our commitment to individualized career development, opportunities to develop teaching skills, organic internal cross-disciplinary research collaborations, and more.

However, my single, all-encompassing message to you, our prospective graduate student, is that our program is renewing and reinvigorating our commitment to "student-first" doctoral biology training. For self-motivated students of outstanding ability and intellect, Cold Spring Harbor Laboratory is a place like no other. I encourage you to find out all we offer to help you develop your passion for discovery and become a next-generation leader in science and society.

Zachary Lippman
Professor; HHMI Investigator; Jacob Goldfield Professor of Genetics;
Director of Graduate Studies

Overview and Key Features

COURSEWORK AND LAB ROTATIONS ARE SEPARATED

Coursework and lab rotations are separated: This arrangement ensures students can focus exclusively on coursework in the first term and their lab rotations in the spring. In the Fall Term, all first-year students, regardless of their scientific background and future area of thesis research, study the same, broad, full-time curriculum. Before the courses start, we provide a series of Bootcamp lectures in various subjects to allow students with different backgrounds to get acquainted with areas that might be new to them, preparing them for the core course. Furthermore, each course throughout the term has one or more tutors associated with it, provided by the School. Because they all study the same courses, the students spend a considerable amount of time working together, sharing their different skill sets and background knowledge and thereby teaching each other. All grading is pass/fail to encourage group learning.

Another feature of the Fall Term is the Research Topics series. This comprises presentations by every faculty member describing their research and mentoring styles. These talks, together with the broad Fall curriculum, ensure that before students even decide on their first rotation they are much more familiar with the faculty and more informed scientifically than is typically the case in other Ph.D. programs. As proof of its value, many students end up working in labs – indeed, fields – they'd not anticipated when they started the term.

DEDICATED STUDY SPACE AND ACCESS TO MENTORING

Throughout the first year, before they join their thesis research labs, students are provided with their own desks in an extensive, dedicated study area in the Urey Building/Lindsay Student Center. The Director and School staff are also housed in this building – in fact, the staff and students are the sole occupants. This arrangement ensures the students have space to study and work together and also that they interact with the administration on a daily basis. This is a vital feature of the program - it allows for informal discussions and advice at any time and on any topic. Given the small size of our program (an average of nine students per year) these relationships prevail throughout the students' training, and the majority continue to visit Urey regularly after the first year to discuss specific issues, their futures, or just to chat. These visits also foster relationships between older students and the resident first-years.

Cumulatively, these interactions - between the administration and the students, and between students at different stages - provide an extensive mentoring and support network and enhance a sense of community. Additional mentoring is supplied by the faculty Academic Mentors: at the start of the Fall Term, all students choose a faculty member to be their Academic Mentor, a relationship that continues even after the students choose their thesis Research Mentor at the end of the first year.

ADDITIONAL EDUCATIONAL FUNDS PROVIDED BY THE SCHOOL

Each year, for years 2-4, the student and research mentor are provided with $4,000. First year students receive $2,000. This aids them in their educational and research development. It is chiefly used by the students to attend courses and meetings, or to access other educational resources, but can also be used for equipment or reagents the student needs for specific projects that the lab might be unable to provide.

THESIS COMMITTEE MEETINGS SCHEDULED BY THE SCHOOL EVERY SIX MONTHS

The school schedules a thesis committee meeting for each student every 6 months. These take place in the graduate school (Urey Building), and the report and assessment generated by the committee is reviewed by the Director and the Executive Committee of the School, which meets for this purpose once a month. In this way, students regularly receive feedback from sources other than just their Research Mentor, and by monitoring their progress, the School can provide any help the students may need in a timely manner.

STUDENT STIPENDS PROVIDED BY THE SCHOOL FOR THE FIRST FOUR YEARS

Student stipends are funded by the School even after they join their thesis research labs. This funding mechanism ensures students have a flexible choice of labs, irrespective of whether the research mentor has suitable funds for a student stipend, and provides stability in their funding once there. It also facilitates changing labs should mentoring styles or research focus turn out to be mismatched. These fellowships are provided by dedicated endowed funds.

A Brief History

For over 130 years, Cold Spring Harbor Laboratory (CSHL) has offered educational programs in the biological sciences. In 1890, the Brooklyn Institute of Arts and Sciences established the Biological Laboratory, the forerunner of CSHL, for training high school and college teachers. The first course began in July 1890, establishing education in the biological sciences as the Laboratory's first mission.

Research in genetics soon became the Laboratory's second mission. In June 1904, the Carnegie Institute of Washington established the Station for Experimental Evolution, later renamed the Department of Genetics. In 1962, this Department merged with the Biological Laboratory to form Cold Spring Harbor Laboratory.

Several important educational programs for participants of different ages began during the Laboratory's first half-century. 1925 marked the start of the specialized summer field courses in Nature Study Program providing elementary and secondary school students an opportunity to study the natural environment of Cold Spring Harbor.

In 1933, Laboratory Director Reginald Harris initiated the Cold Spring Harbor Symposium on Quantitative Biology bringing together scientists from different backgrounds to discuss the quantitative aspects of biology. The impact of the Symposium was significant as it changed biology from a qualitative to quantitative field of research. The Laboratory hosted its 74th Symposium in 2010 to celebrate Charles Darwin's 200th birthday and the 150th anniversary of his revolutionary work, On the Origin of Species.

The Symposium program was also the beginning of the Laboratory's meetings program, which expanded considerably in the 1970s and 1980s, and now includes more than 20 large, international scientific conferences each year. Today the meetings are attended by more than 10,000 scientists each year, and topics range from the traditional "Molecular Genetics of Bacteria & Phages" to more recent topics, such as "Personal Genomes," and "Gene Therapy." Complementing these larger meetings, the nearby Banbury Conference Center, which was established in 1977, hosts smaller discussion-oriented meetings. In 2010, the meetings program began hosting conferences in Suzhou, China, with the goal of developing a hub for the life sciences in Asia.

In 1945, Director Milislav Demerec encouraged Max Delbrück to develop the Laboratory's first advanced course for scientists, broadening the Laboratory's educational activities. Delbrück's now-famous summer Phage Course helped to shape the field of molecular genetics. It also laid the foundation for the 25 advanced postgraduate courses offered today; these are widely regarded as some of the world's best continuing education opportunities for scientists.

The Laboratory's scope of educational programs expanded further in 1959 with the inception of the summer Undergraduate Research Program (URP). Designed initially to enable college students to spend the summer at the Laboratory as research assistants to the Laboratory's scientists, the program has proved a pivotal experience for many of today's leaders in biology. David Baltimore, who shared the 1975 Nobel Prize in Physiology or Medicine, participated in the first class and spent the summer of 1959 working with George Streisinger on bacteriophage. In 2019, the Program's 60th year, 20 undergraduates were chosen from an international pool of more than 850 applicants. The majority of URPs go on to graduate school, a number even joining the graduate program here at CSHL. After skipping the program in 2020, a small, virtual URP program took place in summer 2021. A full in-person program returned in 2022.

In a significant expansion of its educational outreach activities, the Laboratory created the DNA Learning Center in 1988, led by David Micklos. It is the first facility of its kind devoted entirely to educating students, teachers and the public about genetics. It has welcomed more than 300,000 students, and has expanded its mission to include several multimedia and web-based programs. Today the DNA Learning Center, and its outposts in Harlem and Lake Success, provide accessible resources to students throughout their local New York City and Long Island communities. The largest of the DNA Learning Centers opened in Brooklyn in 2021.

In 1990, the Laboratory initiated the Partners for the Future program for exceptional high school students. This new educational activity offers six or more high school seniors, nominated by their school science faculty, the opportunity to work on original research projects under the guidance of scientist-mentors at CSHL. A majority of this program's participants have gone on to attend top colleges and universities and pursued careers in research.

On September 18, 1998, Cold Spring Harbor Laboratory gained accreditation from the Board of Regents of the University of the State of New York, on behalf of the State Education Department as a Ph.D. degree-granting institution. This led to the establishment of the School of Biological Sciences in February 1999. Since awarding its first doctorate in 2003, the School has awarded a total of 156 Ph.D. degrees through August 2024.

CSHL's Educational Environment

DNA LEARNING CENTER

An important goal of Cold Spring Harbor Laboratory is to stimulate the education of children and teachers in the biological sciences. Through its DNA Learning Center, the Laboratory offers a year-round selection of programs for primary and secondary students, as well as special programs for science teachers. Students participate in teaching at the DNA Learning Center as part of the curriculum's instruction in scientific exposition.

PARTNERS FOR THE FUTURE

Partners for the Future provides an opportunity for talented Long Island high school students to have hands-on experience in biomedical research at Cold Spring Harbor Laboratory.

UNDERGRADUATE RESEARCH PROGRAM

Begun in 1959, the Laboratory's Undergraduate Research Program is a highly selective, ten-week residential summer research program for undergraduate students from the United States and abroad. Students work with senior scientists in their labs to learn through experimentation about theoretical principles and practical methodologies in biology. Additionally, the program instructs students in the delivery of scientific presentations and provides the opportunity to put what is learned into practice.

POSTBACCALAUREATE RESEARCH EDUCATION PROGRAM (PREP)

Our postbaccalaureate research education program (PREP), funded by the NIGMS, provides research experience in cancer, neuroscience, genomics, quantitative biology and plant biology, together with extensive mentoring, coursework, and professional and skills development workshops for students interested in pursuing PhD degrees in the biosciences.

POSTDOCTORAL PROGRAM

Cold Spring Harbor Laboratory recruits scientists from around the world who have distinguished themselves in their doctoral thesis research. Each postdoctoral fellow works closely with a Laboratory scientist, usually for several years. The experience allows young scientists to sharpen their analytical skills, establish a reputation in an area of scientific inquiry, and develop an independent research program. The Laboratory's postdoctoral program office, which is housed within the School, works closely with postdoctoral fellows and faculty to enrich the postdoctoral experience at Cold Spring Harbor Laboratory.

MEETINGS & COURSES

Each year the Laboratory offers courses at the postgraduate level, and hosts international conferences. More than 10,000 scientists visit our campus each year to participate in these programs. The postgraduate research courses teach biology at the highest level to advanced graduate students, postdoctoral fellows, and senior scientists looking to change research direction. Instructors and guest lecturers are recruited from leading universities and research institutes from around the world. The Cold Spring Harbor Laboratory conferences and symposia significantly advance the progress of collective research as colleagues from around the globe gather to share their ideas and latest results with each other. Each year, the Laboratory's Banbury Center hosts smaller conferences that focus on topics in the biological sciences, including significant health, societal, and ethical issues.

CSHL's Environment & Resources

COLD SPRING HARBOR LABORATORY

Cold Spring Harbor Laboratory is located on the wooded north shore of Long Island, 35 miles east of Manhattan in New York City. Long Island is a glacial moraine left by the Ice Age, with islets and natural harbors facing Long Island Sound to the north and expansive beaches facing the Atlantic Ocean to the south. The nearby village of Cold Spring Harbor, a whaling town in the 19th century, attracts weekenders from New York City. Thirty miles east of the Laboratory is Stony Brook University, and ten miles further is the Brookhaven National Laboratory. Cold Spring Harbor Laboratory employs more than 1,000 people, including more than 50 heads of laboratories, 150 postdoctoral fellows, and more than 100 graduate students.

THE CAMPUS

The main campus of the Laboratory is located on 110 acres on the west shore of Cold Spring Harbor. Within five miles of the main campus are the 50-acre Banbury Center, the 12-acre Uplands Farm Agricultural Field Station, the Cancer Genome Research Center and, in the village of Cold Spring Harbor, the DNA Learning Center. On the main campus, more than 40 buildings are devoted to research, education, and residences.

LIBRARY

The Library and Archives, located in the Carnegie building, houses the main collection of materials, while eight satellite libraries hold specialized collections in cancer cell biology and virology, neuroscience, crystallography and structural biology, plant genetics, and bioethics. The library offers online access to 90% of its journal collection and access to scientific databases, e-books and reference materials. Our Archives consists of the CSHL collection and the newly established Genentech Center for the History of Molecular Biology and Biotechnology. The archival collections include original papers, manuscripts, lab notebooks and correspondence. Interviews with prominent scientists are available in our Oral History DVD collection.

CANCER GENOME RESEARCH CENTER

Cold Spring Harbor Laboratory's Cancer Genome Research Center is one of the largest centers of its kind in New York State. The Center significantly advances the Laboratory's research missions through its additional laboratory space, core facilities and the Genome Sequencing Center.

INFORMATION TECHNOLOGY

The IT Department provides campus-wide support for all computer-related needs of the Laboratory. Computing services are maintained in three distributed datacenters. A high speed fiber optic network connects all buildings, with over 1800 devices—the majority of these, including a 500 node world class supercomputer, are used for computer intensive scientific applications. File, backups, e-mail, wireless connections in all classrooms, and other services, are provided to all graduate students.

CLASSROOMS, STUDENT CENTER, AND ADMINISTRATION

Conference and lecture rooms are located throughout Cold Spring Harbor Laboratory. These instructional facilities are in Beckman Laboratory, Bush Lecture Hall, and Delbrück, Demerec, James, Marks, McClintock, and Hillside Laboratories. Fall-term courses are offered in different lecture rooms, which ensures that first-year students experience different research environments. It also promotes student–faculty interactions. Urey Cottage provides office and conference space for first-year students in the Lindsay Student Center and houses the administrative offices of the School of Biological Sciences.

GRADUATE STUDENT HOUSING

The Laboratory provides housing to students through a network of subsidized on-site and off-site housing. Single graduate students are offered single rooms in shared houses; married students are housed in apartments. First-year students are offered housing in one of two renovated 19th century houses located on the road to the Village of Cold Spring Harbor.

HEALTH CARE Graduate students are provided with health care through the Laboratory's student health-care plan, which includes coverage for dental and major medical expenses for the students, and their spouses and children.

SUPPORT SERVICES A student's passage through graduate school will not be without its challenges. Most of the time, individuals can resolve these challenges themselves or with the assistance of faculty, friends and peers. Sometimes, however, some professional coaching or counseling can assist one in resolving bigger challenges. The Laboratory has available an independent professional counselor to confidentially assist you should the need arise. To request an appointment, contact Leslie Reduto at (516) 519-0350 or at lreduto@northwell.edu.

The Employee (student) Assistance Program (EAP) is available without cost and is on-site at The SightMD Center for Health and Wellness. The program can assist students with a wide range of concerns from emotional and behavioral issues to learning difficulties. A free and confidential off-site Employee Assistance Program (EAP) is also available to all students and their covered dependents. This program deals with the problems above but also can assist with work-related difficulties, financial concerns, and alcohol and drug-related problems.

OMBUDS The CSHL Ombuds Office is an independent, confidential, neutral, and informal place for discussing conflicts and challenges that are related to your work at CSHL. Email Kira Nurieli at ombuds@cshl.edu with the subject/message "Make an Appointment" to set up a Zoom meeting. Please do not include any details or sensitive information in your request to meet.

LOCAL AMENITIES Cold Spring Harbor Laboratory has extensive resources for recreational activities, including: a fitness room; pool, table-tennis, and foosball tables; tennis and volleyball courts; a beach for swimming and fishing; sailboats, racing sculls and windsurfers; and many quiet back roads for running or walking. Laboratory staff participate in ultimate frisbee, a summer volleyball league, winter basketball, and weekly soccer games. Blackford Hall provides dining facilities and an on-campus bar for the employees. The Laboratory also hosts picnics in the summer and indoor parties in the winter. As a part of its meetings program, students may participate in afternoon wine-and-cheese gatherings and cocktail receptions with meeting participants. Students are also welcome to attend distinguished lectures and classical music performances sponsored by the Laboratory for scientists and the neighboring community. Within an hour of the Laboratory are Manhattan and the magnificent beaches of the south shore of Long Island. New York City offers an extraordinary range of cultural events, shopping opportunities, fine restaurants, and world-famous museums. Theatergoers can enjoy musicals, comedies, and dramas in venues on and off Broadway. Music aficionados will find instrumental and vocal performances to suit all tastes, and sports enthusiasts can revel in a wide variety of athletic events. Occasionally friends of the Laboratory donate tickets for concerts and other events to employees and students of Cold Spring Harbor Laboratory.

CSHL Interest Groups

Interest groups are open to all members of the CSHL community and have specific missions.

DIAS The CSHL DIAS (Diversity Initiative for the Advancement of STEM) is an organization broadly interested in raising awareness and inclusivity in science. They are involved in hosting on-campus seminars by prominent speakers, and providing outreach to nearby community colleges.

BEC The CSHL BEC (Bioscience Enterprise Club) provides information for students interested in non-academic scientific careers through an extensive series of seminars and workshops. The topics cover a wide range of non-academic and non-research careers, from biotechnology and intellectural property to scientific publishing.

WiSE The CSHL WiSE (Women in Science and Engineering) was founded to create a strong and collaborative support system for women scientists at CSHL and beyond. To address challenges disproportionally affecting women in STEM, WiSE provides a platform for professional development and empowerment through mentorship, career planning, community outreach and educational opportunities. WiSE is open to all members of the CSHL community.

INeT INet NYC is an organization that aims to provide support and professional development opportunities for international STEM scientists affiliated with institutions in the NYC area. INet NYC organizes events that are focused on the challenges that international scientists face in order to become successful within the US.

The Ph.D. Program

Advances in biology depend on multidisciplinary approaches, in which knowledge and technology from diverse areas intersect to inspire new discoveries. Today, the breadth of accumulated knowledge about biology is immense—far more extensive than any individual can assimilate. Thus, our curriculum is designed to train self-reliant students to become scholars who, under their own guidance, can acquire and assimilate the knowledge their research or career demands require.

The curriculum takes advantage of the unique and flexible environment of Cold Spring Harbor Laboratory and includes the following features:

• approximately five years from matriculation to Ph.D. degree

• broad representation of the biological sciences

• a first year with course work and laboratory rotations in separate phases

• emphasis on the principles of scientific reasoning and logic, as well as the importance of ethics and effective communication

• continued advanced course instruction throughout the graduate curriculum

• supportive two-tier mentoring and guidance

The School of Biological Sciences is designed for students who desire a Ph.D. in the biological sciences. The program is open to all qualified applicants, irrespective of race, color, creed, religion, sex, pregnancy status, citizenship status, marital status, national origin, mental or physical disability, age, veteran or militarty status, familial status, sexual orientation, gender identity or expression, genetic information, sexual or reproductive health decision making, status as a victim of domestic violence, sex offenses or stalking, or any other characteristic protected by law in admistration of its admissions and educational policies. To give students personal attention and financial support, the number of matriculating students is limited to an average of 9 students per year. Students from around the world are encouraged to apply. Applicants will be assessed on the basis of their academic record, recommendations from their mentors, and an interview. For the 2024 year, we had a 5.0% acceptance rate.

APPLICATION PROCEDURE

All applicants must have received a Bachelor of Arts or Science, or equivalent, degree from an accredited university or college prior to matriculation. A completed application form must be submitted online together with official transcripts of all undergraduate studies, three letters of recommendation, and general and advanced subject GRE results where applicable. There is no application fee. Applicants whose first language is not English must submit recent TOEFL or IELTS scores. In addition to the above requirements, applicants must include in their application materials a 250- to 500-word personal statement that details their reasons for pursuing a Ph.D. degree in the biological sciences and that explains why the School of Biological Sciences is particularly well suited to them. There is an optional second essay to describe any adversity that the applicant may have faced and how it shaped their desire to pursue a Ph.D. degree in the biological sciences. The application deadline is December 1. Students will be selected for admission on the basis of the perceived ability of the student to excel in this doctoral program. Interested students may apply online from our website at www.cshl.edu/phd-program/.

MASTER OF SCIENCE DEGREE

The School of Biological Sciences does not offer matriculation to students seeking the Master of Science (M.S.) degree. Under special circumstances, however, students may petition the graduate school to award an M.S. degree. The M.S. degree will be awarded only if the student has successfully completed the first year of studies, including the course work, laboratory rotations and summer research, and the Ph.D. qualifying exam.

TRANSFER CREDIT

The School of Biological Sciencies does not accept transfer credits. All students are required to complete the School's curriculum regardless of prior experience.

ENTERING CLASS OF 2024

GEOGRAPHIC ORIGINS OF STUDENTS

SHARED GRADUATE PROGRAMS WITH STONY BROOK UNIVERSITY

Stony Brook University (SBU) was founded more than 60 years ago as one of the State University of New York's four university centers. SBU and Cold Spring Harbor Laboratory (CSHL) lie just 25 miles apart. The close proximity has allowed numerous scientific and training collaborations between our institutions for many years. Currently, there are about 50 SBU Ph.D. and M.D.-Ph.D. students at CSHL, accounting for half of the graduate students on-campus. CSHL is enthusiastic about its involvement in the shared graduate programs with SBU. For more information, we encourage students to visit https://grad.stonybrook.edu/

Two-Tier Mentoring

The School of Biological Sciences graduate program is committed to the success of its students. To promote a high level of student achievement, the faculty and administration take an active role in mentoring and supervising the students. A special feature of the curriculum is an intensive and supportive two-tier mentoring program, which involves an academic and research mentor for each student. Soon after matriculation, each student is matched with a faculty member as an academic mentor. The academic mentor follows the student's academic and research progress, and provides advice for the duration of the student's tenure in the graduate program. After the laboratory rotations, each student chooses a research mentor. The research mentor is the doctoral thesis research advisor, who supervises the student's independent laboratory research. Should the student choose his or her academic mentor as the research mentor, a new academic mentor is selected. By providing both academic and research mentors, the School of Biological Sciences provides each student with advice from faculty who hold different views. They can then offer a multiplicity of in-depth evaluations of the student to aid in promoting each student's future career.

The First Year

The first year of the curriculum assumes an innovative format in which students progress rapidly from intensive course instruction to doctoral research. The year begins with a 15- week fall course term that extends from the end of August to mid-December. During the fall term, students are free of research responsibilities, which allows them to devote their full attention to intensive course instruction and seminars.

During the subsequent winter and spring, students participate in three six-week-long laboratory rotations, a Topics in Biology course, and teaching at the DNA Learning Center. In May, students select a research mentor and prepare for the Ph.D. qualifying exam at the end of June. After the requirements of the qualifying exam have been satisfied, students focus on their doctoral research.

ARRIVAL AND ORIENTATION

The curriculum is tailored for a highly qualified and diverse student body. Soon after arrival, students are matched with an academic mentor. Any students needing aid with background knowledge in the biological sciences are provided additional tutoring.

FALL TERM COURSES

The curriculum used in the fall course term provides instruction in a series of integrated courses. Students participate in three core courses — Scientific Reasoning and Logic, Scientific Exposition and Ethics, and Research Topics—which span the length of the fall term. In parallel, students participate in three, tandem four-week lecture courses in specialized disciplines. Students are also introduced to research activities at the Laboratory through an annual Laboratory-wide symposium, graduate student symposia, and Laboratory-wide seminars.

LABORATORY ROTATIONS

After the fall course term, students participate in laboratory rotations. These rotations provide students and faculty with opportunities to get to know each other and to explore possibilities for doctoral thesis research. At the end of each rotation, students make short presentations of their research projects to the other students, the rotation advisors and academic mentors. These talks give students an opportunity to share their laboratory experiences and to receive instruction on how to give a scientific presentation.

TEACHING EXPERIENCE

As science plays an increasing role in society, there is an increasing need for biologists to educate nonscientists of all ages about biology. The graduate program at Cold Spring Harbor Laboratory offers its graduate students unique teaching experiences through the Laboratory's DNA Learning Center. Graduate students gain experience teaching high school and middle school students laboratory courses at the DNA Learning Center. From these experiences, graduate students learn how to communicate with nonbiologists and to inspire and educate creative young minds.

THESIS RESEARCH

The most important element of the Ph.D. program is learning to perform independent research that leads to a unique contribution to human knowledge. Cold Spring Harbor Laboratory is recognized internationally for the excellence of its research faculty, and it thus provides an outstanding environment for doctoral thesis research. Following the laboratory rotation schedule, and generally prior to the qualifying exam, each student selects a research mentor to serve as the doctoral thesis research advisor.

QUALIFYING EXAM

In June of the first year students take an oral qualifying exam. Students are expected to possess a broad basic knowledge of biology and to display the ability to acquire and articulate in-depth scientific information by defending their knowledge of assigned topics.

THE SUMMER MONTHS

Following the qualifying exam, each student begins full-time doctoral research.

The Subsequent Years

After the first year, students focus on laboratory research. Nevertheless, course instruction continues in the form of the annual Topics in Biology course and an annual postgraduate course of the student's choosing. In the second year, students defend their doctoral thesis research proposal, and, in their last year, they present their postdoctoral plans. Students are awarded the Ph.D. degree after successful defense of a thesis that describes their original research.

THESIS PROPOSAL AND DEFENSE

In January of the second year, students defend a written doctoral thesis research proposal. The proposal includes a clear outline of goals and specific aims and describes the broader scientific context and debate surrounding the proposed research. After successful oral defense of the research proposal, a thesis advisory committee consisting of the Research Mentor, Academic Mentor, and the thesis research proposal examining committee is constituted to guide the student with his or her doctoral research.

DISSERTATION AND PH.D. DEFENSE

With the approval of the thesis advisory committee, each student prepares a written thesis on their original research. To defend the thesis, students present a public seminar and are subsequently examined by the thesis committee and an additional examiner external to Cold Spring Harbor Laboratory. A satisfactory defense and fulfillment of all curricular requirements results in the granting of the Ph.D. degree. The graduate program is designed so that students can complete their doctoral studies in four to five years.

Courses

The flexible structure of the program permits the design of courses with flexible mandates and formats. Three core courses—Scientific Reasoning and Logic, Scientific Exposition and Ethics, and Specialized Disciplines—span the fall course term and are designed to help students develop the analytical skills required of today's biologists. The courses designated as Specialized Disciplines in Biology are four weeks long and allow students to explore well-defined research fields in depth. Each course is taught by a small team of faculty who work closely together to develop and present a well-organized and cohesive course. The intensive one-week Topics in Biology courses broaden the educational program by offering instruction in areas of biology outside the expertise of Cold Spring Harbor Laboratory's faculty. Lastly, the two- or three-week postgraduate courses offered by the Laboratory allow students to participate in the lectures offered in a long-standing and highly regarded series of advanced-level courses.

Thus, a Ph.D. student participates in a total of 14 lecture courses: the three core courses, four Specialized Disciplines in Biology courses, four Topics in Biology courses, and three Cold Spring Harbor Laboratory postgraduate-course lecture series.

BOOTCAMPS

Bootcamps are short, intensive courses aimed to get all students to a similar level of proficiency in a defined topic in preparation for the core courses. Bootcamps have been offered in molecular biology (cellular biology and biochemistry) and quantitative biology, and are required for all students, regardless of academic background.

THE CORE COURSES

Scientific Reasoning and Logic A fundamental aspect of earning the Ph.D. is training in the pursuit of knowledge. In this core course, which forms the heart of the curriculum, students (1) acquire a broad base of knowledge about the biological sciences, (2) learn about the logic of biological thought, and (3) learn how to think critically. This course is taught by a team of six instructors and consists of six bi-weekly segments, each of which has a different theme. Each week, students read an assigned set of research articles and at the end of the module provide written answers to a problem set that guides them through several of the articles. Twice weekly, students attend lectures related to the week's topic that include concepts and fundamental information, as well as experimental methods. During each week, the students meet among themselves to discuss assigned papers not covered by the problem set. Each week students spend an evening discussing the assigned articles with faculty.

Scientific Exposition and Ethics This core course offers instruction in the fundamental elements of scientific exposition—writing skills and public speaking—and ethics. The ability to communicate effectively and to appreciate the intricacies of ethical issues are essential skills for biologists; both subjects are taught in a series of example-based lectures and discussion groups. Writing skills include the fundamentals of modern scientific English and the organization and preparation of papers, research abstracts, and grant applications. Oral presentation skills are taught by scientists with excellent, albeit different, modes of presentation. Together with instructors, students critique formal seminar presentations at the Laboratory. Instruction and discussions about ethics include the ethical implications of biological discovery on society, as well as the nature and boundaries of ethical behavior of scientists and their rights and responsibilities. A primary objective of the course is that students consider exposition and ethics an integral part of scientific research.

Specialized Disciplines The Specialized Disciplines in Biology courses provide in-depth instruction by Cold Spring Harbor Laboratory faculty on defined topics. These four-week courses are divided into a three-week lecture and discussion period and a one-week reading period. The courses enable students to identify key issues in the field, to propose experimental or theoretical solutions to those issues, and to evaluate the published literature. The courses demonstrate biological principles that resonate beyond the limits of the course topics themselves. The topics of these courses can change. Currentely, the courses offered are: Cancer, Systems Neuroscience, Genetics and Genomics, and Quantitative Biology.

RESEARCH TOPICS

As an in-depth introduction to the fields of research that Laboratory scientists investigate, students attend a weekly evening Research Topics seminar, at which faculty members present seminars on their current research topics and methods of investigation. Here, the students learn how to approach important problems in biology. These seminars, together with the annual fall in-house symposium, provide students with a basis for selecting laboratories in which to do rotations.

CAREER DEVELOPMENT

The career and skills development course is required for third year graduate students. In the course, students will have the opportunity to learn about the various career options available to Ph.D.s, work on their own individual development plan, conduct informational interviews and improve communication and mentoring skills. Students will have the opportunity to hear from professionals in specific science-related careers, and take part in experiential learning, where applicable.

TOPICS IN BIOLOGY

Each year, one or a team of invited instructors offer sevenday courses at the Banbury Center to explore specialized topics outside the expertise of the Cold Spring Harbor Laboratory faculty. These courses include morning or evening lectures, as well as afternoon sessions, during which students read assigned papers. The focus of these courses has been Immunology, Evolution, Microbial Pathogenisis, Animal Behavior, Human Behavior, Fundamental Concepts in Statistics, and Physical Biology of the Cell.

POSTGRADUATE COURSES

Cold Spring Harbor Laboratory offers 26 postgraduate courses annually. In their second through fourth years, students select and attend the lecture sessions of one postgraduate course each year. This required element of the graduate school curriculum allows students to design their individual academic programs to their research interests.

RESPONSIBLE CONDUCT OF RESEARCH

Trainees obtain a strong foundation in scientific reasoning, experimental design and methods, quantitative skills, and data analysis and management. Training in the Responsible Conduct of Research (RCR) is delivered through a program of study that includes Laboratory Safety training, the Scientific Exposition and Ethics (SEE) course, CITI Online Training and a dedicated RCR course. In subsequent years, as students are engaged in their thesis research, continued instruction in RCR occurs through meetings with the research mentor and senior laboratory personnel, and in group data and journal club meetings.

RIGOR AND REPRODUCIBILITY

We have developed a program of study in Rigor and Reproducibility (R and R) that is integrated into various components of the training program and at different stages of training. During the first year of the program, students are introduced to various measures, including statistical methods, for enhancing R and R throughout the Fall Curriculum. They also attend a required R and R course in the Spring Term. Instruction in R and R continues through laboratory group meetings with research mentors and senior personnel, and seminars, symposia, and in-house meetings.

TEACHING & PEDAGOGY

Trainees want to have the skills to teach at undergraduate institutions. By pairing with local SUNY Old Westbury Department of Biological Sciences, students can take a 3-session workshop on active learning skills and developing syllabi and assessments.

Seminars and Symposia

Each year, graduate students participate in weekly seminar programs that include graduate student seminars, in-house seminars, and seminars given by invited speakers. Graduate students also participate in an annual, two-day in-house symposium, or retreat, in the fall and seminar programs designed especially for them including the Gavin Borden Lecture.

Cold Spring Harbor Laboratory Conferences

Students are also encouraged to participate in the 20 to 25 annual Cold Spring Harbor Laboratory conferences on a wide range of scientific topics. Students can meet with leading scientists from all over the world who attend these conferences. Students may apply to present their work at the conferences that are relevant to their own research.

Career Development

CSHL exposes students to a variety of scientific careers, from traditional academic research careers to non-research careers in science writing, education or administration. Through formal coursework, informal discussion or targeted career development opportunities, students gain valuable experience that will help them refine their future careers.

INDIVIDUAL DEVELOPMENT PLANS (IDPs)

Students must complete an IDP once per year, starting in their second year. This helps students focus their career plans and establish the necessary steps to fulfill them. Students use the "myIDP" exercises and analysis provided by AAAS to assess their skills, interests, and values, and define the careers that best fit these parameters. Students discuss their IDP and their career goals with their Research Mentor, and often also with their Academic Mentor, members of their thesis committee, the School's Dean, Associate Dean, or Director of Academic Programs. This discussion includes concrete career development steps the student will take in the coming year, distinct from their thesis research.

BIOSCIENCE ENTERPRISE CLUB The Bioscience Enterprise Club provides information for students interested in non-academic scientific careers through an extensive series of seminars and workshops. The topics cover a wide range of non-academic and non-research careers, from biotechnology and intellectual property to scientific publishing, non-profit administration, and venture capitalism. The Bioscience Enterprise Club has worked with local biotechnology start-up companies to offer on-campus recruiting interviews.

EXPERIENTIAL LEARNING Students have numerous opportunities for experiential learning throughout their graduate training, including a formal internship experience. The internships are initiated by the student with help from the School and last more than 10 weeks. One source of internship opportunities comes from the other divisions of CSHL: Meetings and Courses Office, CSHL Press, The DNA Learning Center, and so on, headed by the School's non-research faculty. In addition, students gain teaching experience as part of the first-year curriculum. Students work with educators at CSHL's Dolan DNA Learning Center (www.dnalc.org), helping with curriculum development and teaching laboratory classes. Students can participate in teaching at nearby SUNY Old Westbury College and/or Molloy College, either as guest lecturers in a seminar class, or in a more involved manner by assisting a professor with one or more lectures. (See Teaching and Pedagogy)

CAREER PLANNING RESOURCES Students have access to workshops of the Career Directions Series which are co-organized by the School and CSHL Research Operations. These workshops address a diverse array of topics, such as grant writing and laboratory management, as well as various non-research careers.

An on-campus Writing Resource Center provides individual advice on CVs, resumes, and cover letters. The staff of the School helps students identify potential sources of postdoctoral fellowships and maintains a central repository of job announcements in and outside of academia.

NEW YORK ACADEMY OF SCIENCE The School provides free sponsored memberships to all students in the New York Academy of Sciences' Science Alliance program, which provides professional development opportunities for trainees through a series of live events at their Manhattan location and via webinars and other digital media.

Academic Good Standing

After the student successfully defends their thesis proposal, they must meet with their committee every six months to review the student's progress and provide guidance. Only in the case of medical/personal emergency will there be an exception granted for the requirement of meeting with your committee twice a year. If the committee determines that sufficient progress has not been made, the student will be placed on probation for the next six months and will be required to have another meeting before the end of the probationary period. If sufficient progress is not demonstrated in the second meeting, the student may be asked to leave the program. Progress will be judged by several criteria including: the nature of the experiments performed, place in the context of current scientific dogma and direction for the future, as well as the ability to communicate in a written report and an oral presentation.

Students, in accepting admission to the Ph.D. program, agree to act responsibly and respectfully toward the Laboratory, the School, and individual members of the CSHL community. Students are expected to be knowledgeable of and comply with the rules and regulations of the School, as well with CSHL's policies. Students must conduct themselves accordingly in order to remain in academic good standing. Failure to remain in academic good standing at any time may result in dismissal from the program.

PH.D. DEGREE REQUIREMENTS

Coursework

- Bootcamps
- Scientific Reasoning and Logic - 8 credits
- Scientific Exposition and Ethics - 2 credits
- Specialized Disciplines in Biology - 6 credits
- Research Topics - 0.5 credit
- Career and Skills Development Course - 1 credit
- Peer Review Workshop - 0.5 credits
- Topics in Biology (3) - 2.5 credits each
- CSHL postgraduate course lecture series (3) - 1 credit each

Research

- Six-week laboratory rotations (3) - 2 credits each
- Full-time thesis research - 3 credits for summer of 1st year only

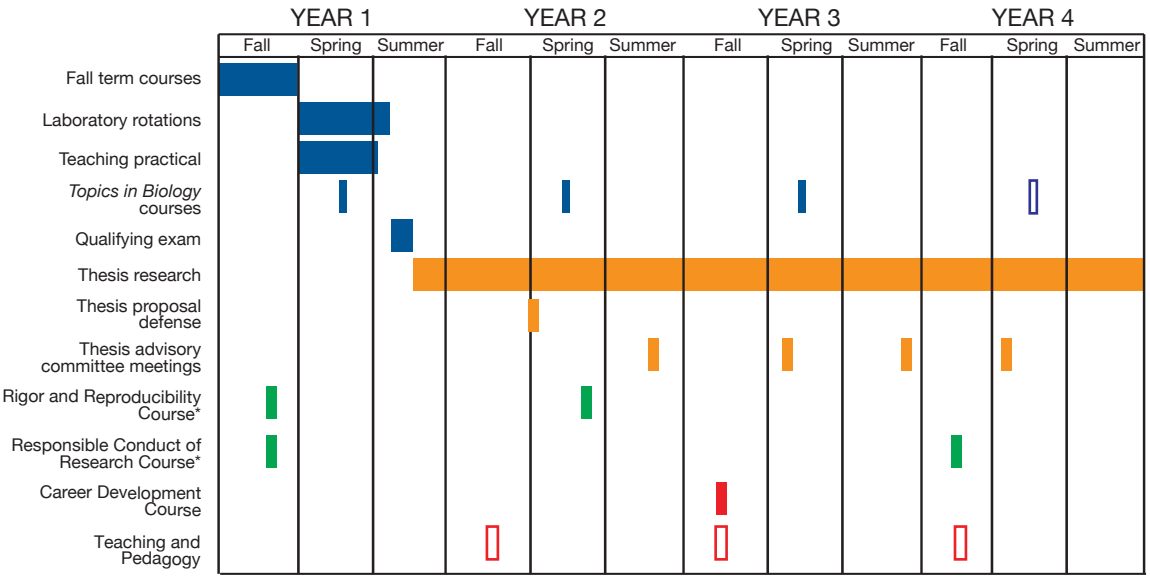
DNALC Teaching practical- 1 credit

Exams

- Integrated Fall Term Exam
- Qualifying Exam
- Thesis proposal defense
- Thesis dissertation defense

Meetings and Seminars

- Graduate student symposium - 1 credit
- CSHL In-House Symposium
- CSHL In-House seminars - 0.5 credit
- CSHL Building-wide seminars - 1 credit
- CSHL Invited Speaker seminar - 0.5 credit



*Subject matter also covered in the Scientific Exposition and Ethics Course; An open box indicated an optional component

LEAVE OF ABSENCE OR RESEARCH ON A PART-TIME BASIS

Students may petition the Director of the School for a leave of absence. A leave of absence may be awarded for a medical emergency, maternity leave, family leave, or any other reason that is approved by the Director and the Director of Human Resources. Only full-time students are accepted into the graduate program. Doctoral research may be considered on a part-time basis only under exceptional circumstances (e.g., for medical reasons). Students are not allowed to accept concurrent employment.

Financial Support

The Cold Spring Harbor Laboratory School of Biological Sciences is largely funded by an endowment generously provided by private donors. For the first four years, each student will receive an annual stipend from the graduate school. The current annual stipend for doctoral students studying at Cold Spring Harbor Laboratory is $45,000 per year (and is reviewed annually). In addition, students are encouraged to seek independent funding through predoctoral fellowships, for example from the National Science Foundation (www.nsf.gov/funding). Students who are awarded a competitive fellowship receive an annual stipend of $49,500.

Students in years 2-4 receive a $4,000 annual research and training costs supplement. Students receive a laptop, software, books and other study materials from the School and a $2,000 research supplement in the first year. Cold Spring Harbor Laboratory and the School of Biological Sciences provide complete health and dental insurance, subsidized on-campus dining costs, affordable on-campus child care, and a $350 gym membership allowance.

ENTERING CLASS OF 2023

ENDOWED FELLOWSHIPS

AINSLIE FAMILY FELLOWSHIP

ANNETTE KADE FUND

BRISTOL-MYERS SQUIBB FELLOWSHIP

CRICK-CLAY FELLOWSHIP IN BIOMATHEMATICS

CHARLES A. DANA FELLOWSHIP

DAVID AND FANNY LUKE FELLOWSHIP

DAVID H. KOCH FELLOWSHIP

EDWARD AND MARTHA GERRY FELLOWSHIP I AND II

ELISABETH SLOAN LIVINGSTON FELLOWSHIP

ESTATE OF BENJAMIN V. SIEGEL

FARISH-GERRY FELLOWSHIP

FLORENCE GOULD FELLOWSHIP

GEORGE A. AND MARJORIE H. ANDERSON FELLOWSHIPS

GLADYS AND ROLAND HARRIMAN FOUNDATION FELLOWSHIP

GOLDBERG-LINDSAY FELLOWSHIP

GONZALO RÍO ARRONTE FELLOWSHIP

GURU KRUPA FOUNDATION FELLOWSHIP

ILAN GLUZMAN FELLOWSHIP

JENNY AND JEFF KELTER FELLOWSHIP

JOHN AND AMY PHELAN SCHOLARS

JORDAN AND THOMAS A. SAUNDERS III NEUROSCIENCE FELLOWSHIP

LESLIE C. QUICK, JR. FELLOWSHIP

MIRIAM AND ALAN GOLDBERG FELLOWSHIP

OSI PHARMACEUTICALS FELLOWSHIP

STARR CENTENNIAL SCHOLARSHIPS

ROBERT AND TERESA LINDSAY FELLOWSHIP I AND II

WILLIAM RANDOLPH HEARST FOUNDATION SCHOLARSHIP

WILLIAM R. MILLER FELLOWSHIP

20 YEAR REUNION - 2019

GRADUATE OUTCOMES

RETENTION The School's retention rate is over 95%, and all students have graduated within six years of starting their studies.

CAREER CHOICES The average time to degree is five years. Directly after graduating from the School, 64% of Ph.D. awardees pursued postdoctoral training in academic research labs, 3% took up independent positions in academia or industry, 22% are in industry or biotech, and 11% followed non-reasearch science-related careers. Currently, of our Ph.D.s who graduated six or more years ago, 41% are in tenure-track faculty or independent research positions at major US or international research institutes; 35% are in industry or biotech positions; and about 14% are continuing with postdoctoral training. The remaining graduates are employed in non-research, science-related careers such as consultancy, publishing, or biotech management, or non-science careers.

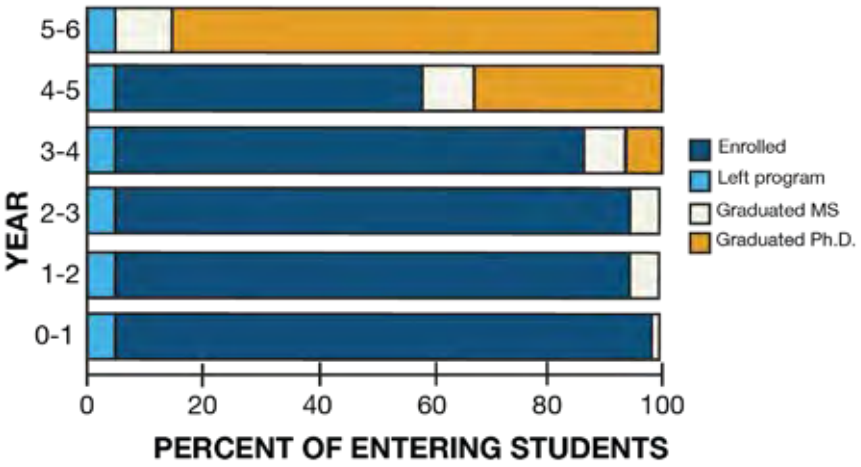
STUDENT AWARDS Four students have been awarded the prestigious Harold M. Weintraub Graduate Student Award for their thesis research achievements (in 2003, 2005, 2010 and 2015). One student received the AAAS Newcomb Cleveland Prize from the journal *Science*; others have been honored by professional societies.

STUDENT PUBLICATIONS Students have published over 500 papers, a demonstration of the rigorous and reproducible work they performed during their training. Almost a quarter of those papers appeared in *Science, Nature, Neuron* or *Cell.*

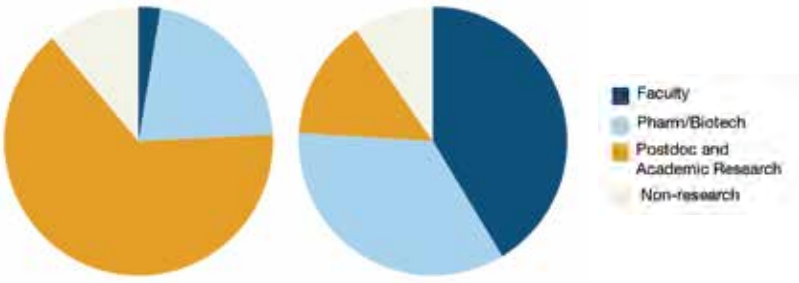
ALUMNI AWARDS Our graduates were awarded prestigious postdoctoral fellowships, including those from the Human Frontiers in Science Program, Helen Hay Whitney Foundation, Jane Coffin Childs Memorial Fund, Leukemia and Lymphoma Society and the Buroughs Welcome Fund. Six graduates received NIH Pathways to Independence Awards (K99/R00), one an NIH Scientist Development Award (K01), and another an NIH Career transition Award (K22).

GRADUATING CLASS OF 2024

STUDENT PROGRESS & TIME TO DEGREE



CAREER PATHS OF Ph.D. GRADUATES



Immediately post-graduation 2003-2024 (n=156)

Currently, ≥ 6 years after graduation 2003-2018 (n=104)

The Faculty

Cold Spring Harbor Laboratory is world-renowned for the excellence of its faculty, an international group of scientists with many different perspectives on education and research in the biological sciences. This has helped create our unique graduate program. By integrating two groups—research faculty, who direct independent research programs, with nonresearch faculty, who direct other programs at the Laboratory—the School of Biological Sciences provides exceptional educational breadth for today's graduate students.

RESEARCH FACULTY

The research interests of the faculty are broad and diverse and can be organized into five overarching disciplines: plant biology, cancer and molecular biology, neuroscience, genomics, and quantitative biology. The discipline with the longest tradition at the Laboratory is plant biology, which originated with the development of hybrid corn by George Shull in the early 1900s and has been continued throughout the past century, most notably by Barbara McClintock, who demonstrated the dynamic nature of genomes through the discovery of transposable elements in maize. Today, scientists at the Laboratory have used the transposable elements discovered by McClintock to develop technologies to study plant development and physiology in the small flowering plant *Arabidopsis*.

The study of cancer biology links scientists who have a broad range of interests. James Watson initiated the Laboratory's cancer research program when he became its director in 1968. Today, two-thirds of the faculty at the Laboratory is associated with the cancer program in a broad-based research effort that involves many model organisms and includes investigations of oncogene function, apoptosis, signal transduction, cell cycle control, cell biology, RNA interference, regulation of gene expression and DNA replication, chromosome dynamics, epigenetics, structural biology, virology, bioinformatics, and genome sequencing. Scientists engaged in cancer-related research focus on many aspects of molecular and cellular biology and often collaborate with members of the other research programs.

In 1991, the Laboratory initiated a new research effort in neurobiology with a special focus on neural plasticity and learning and memory. This new discipline has already met with exceptional success in studies of neurobiology in both vertebrates and invertebrates. More recently, Cold Spring Harbor Laboratory has established a focus on quantitative biology. These researchers apply tools and concepts from mathematics, physics, and statistics to address unanswered biological questions.

By being grouped into five thematic areas of research — plant biology, cancer and molecular biology, neuroscience, genomics, and quantitative biology — the faculty and students synergize with one another through common interests. The synergy is enhanced by grouping faculty with similar interests in the same buildings. Nevertheless, there is also extensive interaction among faculty and students in different disciplines through research collaborations shared seminar programs, dining facilities, and social and cultural events.

Dinu Florin Albeanu, Professor; Ph.D., Harvard U, 2008. Neuronal circuits; sensory coding and synaptic plasticity; neuronal correlates of behavior; olfactory processing.

Katherine Alexander, Assistant Professor; Ph.D., Cornell U, 2021.Gene regulation; nuclear speckles; chromatin organization; transcription factors.

Corina Amor, Assistant Professsor; Ph.D., Gerstner Sloan Kettering, 2021.Senescence; aging; cancer; immunology; cellular communication; mouse models.

Arkarup Banerjee, Assistant Professor; Ph.D., Cold Spring Harbor Laboratory, 2016. Vocal communication; singing mice; systems neuroscience; neural circuits; neuroethology.

Semir Beyaz, Assistant Professor; Ph.D., Harvard U, 2017. Immunology; cancer; nutrition; metabolism; epigenetics.

Jeremy Borniger, Assistant Professor; Ph.D., Ohio State U, 2017. Sleep; neuromodulators; cancer neuroscience; homeostasis; host-tumor physiology.

Lucas Cheadle, Assistant Professor; Ph.D., Yale U, 2014. Synapse; refinement; pruning; sensory experience; microglia; development; autism; 2-photon imaging; single-cell RNA-sequencing; cytokine.

Benjamin Cowley, Assistant Professor; Ph.D., Carnegie Mellon U, 2018. Computational neuroscience; closed-loop experiments; interpretable models; deep neural network models; machine learning.

Camila dos Santos, Associate Professor; Ph.D., U Estadual de Campinas (BR), 2006. Breast cancer; mammary gland development; stem cells; gene regulation; enhancer biology.

Douglas Fearon, Professor; M.D., Johns Hopkins, 1968. Cancer immunology; pancreatic cancer; mouse models.

Hiro Furukawa, Professor; Ph.D., Tokyo (JP), 2001. Membrane proteins; X-ray crystallography; electrophysiology; neurodegenerative disease.

.**Thomas Gingeras**, Professor; Ph.D., NYU, 1976. Genome-wide organization of transcription and the functional roles of nonprotein coding RNAs.

Christopher Hammell, Professor; Ph.D., Dartmouth U, 2002. Post-transcriptional gene regulation; control of animal developmental timing; RNA biology.

Helen Xun Hou, Assistant Professor; Ph.D., Harvard U, 2017. Neural circuits; neural behaviors; brain-body interaction; electrophysiology; movement control; neural computation.

Ivan Iossifov, Professor; Ph.D., Columbia U, 2008. Computational biology; molecular networks; human genetics; human disease; applied statistical and machine learning; biomedical text-mining; molecular evolution.

David Jackson, Professor; Ph.D., U East Anglia (UK), 1991. Plant development; stem cell signaling; genomics and imaging.

Tobias Janowitz, Assistant Professor; M.D./Ph.D., U Cambridge (UK), 2006. Host response to cancer; tumor immunology; cancer immunotherapy; cachexia; physiology of patients with cancer.

Leemor Joshua-Tor, Professor, HHMI Investigator; Ph.D., Weizmann Inst. (IL), 1991. Structural biology; nucleic acid regulation; RNAi; molecular recognition; X-ray crystallography.

Justin Kinney, Associate Professor; Ph.D., Princeton U, 2008. Sequence-function relationships; machine learning; biophysics; transcriptional regulation.

David Klindt, Assistant Professor; Ph.D., U Tübingen (DE), 2021. Artificial intelligence; computational neuroscience; sensory information processing; robust perception; representation learning

Peter Koo, Assistant Professor; Ph.D., Yale U, 2015. Sequence-function relationships; deep learning; representation learning.

Alexei Koulakov, Professor; Ph.D., U Minnesota, 1998. Theoretical neurobiology; quantitative principles of cortical design; computer science; applied mathematics.

Adrian Krainer, Professor; Ph.D., Harvard U, 1986. Posttranscriptional control of gene expression; alternative splicing; splicing in genetic diseases and cancer; splicing-targeted antisense therapeutics.

Dan Levy, Associate Professor; Ph.D., UC Berkeley, 2005. Computational biology; human genetics; phylogenetics; copy number variation.

Zachary Lippman, Professor; HHMI Investigator; Director of Graduate Studes; Ph.D., Cold Spring Harbor Laboratory, 2004. Plant developmental genetics; mechanisms of phase transitions for flowering time and inflorescence branching; heterosis.

Michael Lukey, Assistant Professor; Ph.D., U Oxford (UK), 2010. Cancer; metastasis; metabolism; nutrition; cellular signal transduction; redox; homeostasis; epigenetics.

Robert Martienssen, Professor; HHMI Investigator; Ph.D., Cambridge U (UK), 1986. Plant genetics; transposons; development; gene regulation; DNA methylation.

Hannah Meyer, Assistant Professor; Ph.D., Cambridge U (UK), EMBL-EBI, 2018. Spatial transcriptomics; immunology; central tolerance; bioinformatics.

David McCandlish, Associate Professor; Ph.D., Duke U, 2012. Computational biology; sequence-function relationships; population genetics; protein evolution; machine learning.

W. Richard McCombie, Professor; Ph.D., U Michigan, 1982. Genomics of psychiatric disorders; genomics of cancer; computational genomics; plant genomics.

Alea Mills, Professor; Ph.D., UC Irvine, 1997. Cancer; development; aging; senescence; epigenetics.

Partha P. Mitra, Professor; Ph.D., Harvard U, 1993. Neuroscience; theoretical biology.

John Moses, Professor; Ph.D. (DPhil), U Oxford (UK), 2004. Click chemistry; cancer; chemical biology; organic synthesis; natural products; biomimetic synthesis.

Saket Navlakha, Associate Professor; Ph.D., U Maryland Collge Park, 2011. Algorithms in nature; biological computation; neural circuits; plant architectures.

Ullas Pedmale, Associate Professor; Ph.D., U Missouri, Columbia, 2008. Plant growth; signaling; genomics; development; plant-environment interactions.

Gabrielle Pouchelon, Assistant Professor; Ph.D., U Geneva (CH), 2013. Neural circuits; development; gene regulation; synaptic refinement; plasticity; neurodevelopmental disorders.

Andrea Schorn, Assistant Professor; Ph.D., Max-Delbrück Center for Molecular Medicine, Freie Universitaet (DE), 2009. Transposons and endogenous retroviruses; small regulatory RNA; tRNA-fragments; epigenetics

Stephen Shea, Associate Professor; Ph.D., U Chicago, 2004. Olfaction; audition; communication behaviors; in vivo electrophysiology; individual recognition.

Adam Siepel, Professor; Ph.D., UC Santa Cruz, 2005. Computational biology; population genetics; computational genomics; molecular evolution; gene regulation.

David Spector, Professor; Ph.D., Rutgers U, 1980. Cell biology; gene expression; nuclear structure; non-coding RNAs.

Bruce Stillman, Professor; PR Ph.D., Australian National U, 1979. Cancer; cell cycle; DNA replication; chromatin assembly; biochemistry; yeast genetics.

Jessica Tollkuhn, Associate Professor; Ph.D., UC San Diego, 2006. Transcriptional regulation; chromatin; critical periods in neurodevelopment; steroid hormones and behavior.

Nicholas Tonks, Professor; Ph.D., Dundee (UK), 1985. Posttranslational modification; phosphorylation; phosphatases; signal transduction; protein structure and function.

Lloyd Trotman, Professor; Ph.D., Zurich (CH), 2001. Molecular mechanisms of tumor suppression; cancer modeling and treatment; molecular cancer visualization; PTEN regulation.

David Tuveson, Professor; M.D., Ph.D., Johns Hopkins, 1994. Pancreatic cancer; experimental therapeutics; diagnostics; mouse models; cancer genetics.

Christopher Vakoc, Professor; M.D., Ph.D., U Pennsylvania, 2007. Chromatin; transcriptional regulation; acute myeloid leukemia; BET bromodomains; lysine methyltransferases.

Linda Van Aelst, Professor; Ph.D., U Leuven (BE), 1991. Signal transduction; Ras and Rho proteins; tumorigenesis; neural development and disorders.

Doreen Ware, Adjunct Professor; Ph.D., Ohio State U, 2000. Genomics; genome evolution; genetic diversity; gene regulation; plant biology; computational biology.

Peter Westcott, Assistant Professor; Ph.D., UCSF, 2015. Cancer genomics; immunology; tumor evolution; advanced mouse models; single cell and spacial omics.

Michael Wigler, Professor; Ph.D., Columbia U, 1978. Human genetic disorders; population genetics; cancer genomics.

Anthony Zador, Professor; M.D./Ph.D., Yale U, 1994. Neural circuits; sensory processing; attention and decision making; attention; molecular tool development; connectomics.

Lingbo Zhang, Assistant Professor; Ph.D., MIT/National U Singapore, 2013. HHematologic malignancies; tumor microenvironment; metabolites; micronutrients; neurotransmitters; diets; nervous system activities.

CSHL FELLOWS

Mitra Javadzadeh, Ph.D., University College London (UK), 2023. Visual cortex; Population activity; interareal communication; systems neuroscience; computational neuoscience; electrophysiology.

NON-RESEARCH FACULTY

Alexander Gann, Ph.D., U Edinburgh. Professor, School of Biological Sciences.

Terri Grodzicker, Ph.D., Columbia U. Dean of Academic Affairs.

John Inglis, Ph.D., U Edinburgh. Executive Director, Cold Spring Harbor Laboratory Press.

Rebecca Leshan, Ph.D., U Michigan. Executive Director, Banbury Center.

David Micklos, M.A., U Maryland. Executive Director, DNA Learning Center.

David Stewart, Ph.D., U Cambridge. Director, Cold Spring Harbor Laboratory Meetings and Courses.

Jan A. Witkowski, Ph.D., U of London. Special Advisor.

Academic Freedom Policy

The right of faculty members and students to academic freedom is fundamental to the scientific and educational mission of the School of Biological Sciences at Cold Spring Harbor Laboratory (CSHL) and a necessary part of advancing knowledge and supporting a free, diverse, and democratic society. Academic freedom guarantees scholars, teachers, and students within the School of Biological Sciences the right to pursue knowledge and to speak, write, and follow open inquiry without unreasonable restriction. Freedom in research should advance the truth. Freedom in teaching should enable students to acquire the knowledge they need to contribute to society. Freedom in teaching should help students learn to appreciate differing opinions, weigh evidence, and form logical judgements about the value of competing perspectives. Freedom in learning should protect a student's right to acquire knowledge. Academic freedom ensures that the evaluation as researcher, teacher, or student will be on the basis of scholarship and professional criteria without regards for personal beliefs, political or religious views, or other individual preferences unless these demonstrably affect intellectual or professional achievement. Discussion must not infringe on the rights of others or coerce students to adopt a faculty member's view as the only acceptable view. Procedures for arriving at professional, personnel, and academic evaluations shall be fair, acknowledging the substance of the decision.

Scholars of CSHL are scientists and representatives of an institute of higher learning. This special position within the community imposes obligations: faculty and students must acknowledge that the public may place especial weight on their statements and judge the scientific profession, and CSHL by their research and/or words. As such,faculty and students, when acting as scientists and academics rather than private members of the community, must be accurate and precise, exercise the appropriate restraint, respect the opinions of others, and make every effort to indicate that they are not speaking for CSHL.

Academic freedom may be jeopardized if unfair procedures have demonstrably contributed significantly to a significant professional, personnel, or academic decision adverse to the person complaining. In exchange for the rights guaranteed by academic freedom, faculty and students must uphold the highest ethical standards of scholarship and research, and any failure to do so will be addressed according to CSHL's formal policies addressing scientific misconduct.

The policy is based on the 1940 Statement of Principles of Academic Freedom and Tenure as put forth by the Association of American Colleges and Universities.

Sexual Respect and Title IX

Cold Spring Harbor Laboratory and the School of Biological Sciences provide a learning, living and working environment free from gender-based discrimination. CSHL complies with applicable state and federal statutes, including Title IX of the federal Higher Education Amendment of 1972, which prohibits discrimination on the basis of sex in any education program or activity receiving federal assistance, including NIH funding. Sexual assault and sexual harassment are forms of sex discrimination prohibited by Title IX. In accordance with NYS Education Law Article 129-B, the Laboratory is committed to providing options, support and assistance to victims of sexual assault, domestic violence, dating violence and/or stalking to ensure that students can continue to participate in Laboratory programs, activities and employment. The Laboratory encourages victims and witnesses of sexual misconduct to report such incidents to the CSHL Title IX Coordinator, Julie Block-Rosen, (516) 367 - 5017, blockro@cshl.edu. Additional information may be found at https://www.cshl.edu/phd-program/about/#sexual-respect-title-ix

Non-Discrimination Policy

Cold Spring Harbor Laboratory School of Biological Sciences does not discriminate on the basis of race, color, creed, religion, sex, pregnancy status, citizenship status, marital status, national origin, mental or physical disability, age, veteran or military status, familial status, sexual orientation, gender identity or expression, genetic information, sexual and reproductive health decision making, status as a victim of domestic violence, sex offenses or stalking, or any other characteristic protected by law in administration of its admissions and educational policies, or any school-administered programs.

New York State Article 129-B Students' Bill of Rights

Cold Spring Harbor Laboratory is committed to providing options, support, and assistance to victims of sexual assault, domestic violence, dating violence, and/or stalking to ensure that they can continue to participate in Laboratory programs, activities, and employment. All victims of these crimes and violations, regardless of race, color, national origin, religion, creed, age, disability, sex, gender identity or expression, sexual orientation, familial status, pregnancy, predisposing genetic characteristics, military status, domestic violence victim status, or criminal conviction, have the following rights, regardless of whether the crime or violation occurs on-campus, off-campus, or while studying abroad.

All students have the right to:
1. Make a report to local law enforcement and/or state police;
2. Have disclosures of domestic violence, dating violence, stalking, and sexual assault treated seriously;
3. Make a decision about whether or not to disclose a crime or violation and participate in the judicial or conduct process and/or criminal justice process free from pressure by CSHL;
4. Participate in a process that is fair, impartial, and provides adequate notice and a meaningful opportunity to be heard;
5. Be treated with dignity and to receive from CSHL courteous, fair, and respectful health care and counseling services, where available;
6. Be free from any suggestion that the reporting individual is at fault when these crimes and violations are committed, or should have acted in a different manner to avoid such crimes or violations;
7. Describe the incident to as few CSHL representatives as practicable and not be required to unnecessarily repeat a description of the incident;
8. Be protected from retaliation by CSHL, any student, the accused and/or the respondent, and/or their friends, family and acquaintances within the jurisdiction of CSHL;
9. Access to at least one level of appeal of a determination;
10. Be accompanied by an advisor of choice who may assist and advise a reporting individual, accused, or respondent throughout the judicial or conduct process including during all meetings and hearings related to such process; and
11. Exercise civil rights and practice of religion without interference by the investigative, criminal justice, or judicial or conduct process of CSHL.