2019-20 Ph.D. Program
COLD SPRING HARBOR LABORATORY
ADMINISTRATION
Bruce Stillman, Ph.D., F.R.S.
PRESIDENT & CEO

John Tuke
CHIEF OPERATING OFFICER

WATSON SCHOOL OF BIOLOGICAL SCIENCES
ADMINISTRATION
Alexander Gann, Ph.D.
PROFESSOR & DEAN

Monn Monn Myat, Ph.D.
ASSOCIATE DEAN

Alyson Kass-Eisler, Ph.D.
CURRICULUM DIRECTOR & POSTDOCTORAL PROGRAM OFFICER

Kimberly Creteur, M.Ed., M.S.Ed.
ADMISSIONS AND RECRUITMENT MANAGER

Kimberley Geer
ADMINISTRATIVE ASSISTANT
ACCREDITATION

Cold Spring Harbor Laboratory’s Watson School of Biological Sciences is institutionally accredited by the New York State Board of Regents and the Commissioner of Education, a nationally recognized accrediting agency located at 89 Washington Avenue, Albany, New York, 12234, (518) 474-1551.

The following graduate degree programs are offered by the Watson 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 Watson School of Biological Sciences (WSBS) 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 the best and the brightest 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 four to five years from matriculation, while maintaining the highest standards of excellence. Reducing the time to graduation considerably, compared to the national average.
• 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 with diverse ethnicities, 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

Cold Spring Harbor Laboratory provides a uniquely stimulating environment for a doctoral program in the biological sciences. It is an international community of science where students, postdoctoral fellows and faculty work side-by-side. The hierarchical structure of the Laboratory is flat and the atmosphere intimate and highly interactive. Our program is designed for students with exceptional ability and a deep commitment to their graduate education. Its curriculum is designed to train confident, self-reliant students to become scholars and to acquire the knowledge their research and future careers demand.

Our innovative doctoral program includes the following key features:

- Approximately four to five years from matriculation to Ph.D.
- A 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
- Extensive mentoring and support in large part through “two-tier” mentoring.

The Watson School of Biological Sciences opened its doors in 1999. Our first class of six students arrived with a sense of adventure and a trust in a faculty that would follow Cold Spring Harbor Laboratory’s long tradition of non-compromising excellence. In a very short time the WSBS has graduated more than 90 Ph.D. students and become a leading graduate program in the biological sciences, one whose fresh approach is quickly being emulated by other Ph.D. programs across the country.

The spectacular track record of our students and alumni is a testament to the success of our remarkable program. They are publishing well-cited papers in leading journals, have received highly competitive fellowships and awards. Several have started tenure-track faculty positions within four years of graduating, which is much faster than is typical for Ph.D. programs—an excellent indicator of the School’s success in preparing highly qualified and competitive scientific leaders. Our aim remains to produce the next generation of leaders in science and society, and we invite you to join us.

Alexander Gann
Professor and Dean, WSBS
Although Cold Spring Harbor Laboratory has performed vital educational functions since its beginnings in the 1890s, it was not until a meeting of the Laboratory's Board of Directors in 1995 that the idea of an advanced degree granting program was broached in earnest. At the behest of Nobel laureate Dr. James D. Watson, co-discoverer of the double helix, and then the Laboratory's president, a process was set in motion that culminated only three years later in the granting of accreditation to a graduate-level School of Biological Sciences at CSHL by the New York State Department of Education.

It was fitting that the new doctoral program would be housed in a school named for Dr. Watson, since it was his brilliance and iconoclasm that helped give the program its distinctive character. Dr. Watson is famous for encouraging young scientists to seek “meaningful answers to important questions.” But he has also stressed the importance of a broad education, even at the graduate level. “Looking back,” he recollected in 1999, “I remember my first graduate school years as having taught me the values of science, and how experiments should be planned, executed and interpreted. Most importantly, my days were not narrowly focused, and I spent much time learning how others were trying to approach the gene.”

The intention from the outset was to make the Watson School of Biological Sciences a place of educational innovation. Under the direction of founding Dean Winship Herr, a molecular biologist, an effort was undertaken to reproduce in the values of the school some of those which have made research at CSHL so distinctive. Always known as a place where investigators of the first rank have been given the freedom to pursue their ideas, the Laboratory would build a graduate program that stressed exposing doctoral candidates to the very latest developments across a range of biological fields while instilling in them the fundamental values and ethics pertaining to scientific investigation. The program would stress academic freedom but at the same time provide unique, highly individualized mentorship and guidance that would enable students to intelligently and expeditiously choose and carry out a plan of thesis research.

Dr. Herr had at his disposal members of the Laboratory's faculty, who had studied in many countries and in a diversity of graduate programs. Together, they shaped a curriculum that marked a sharp departure from a then-prevailing tendency. At the Watson School, students would earn a doctoral degree in four to four and a half years, on average, the founders agreed. Would this suffice? “For the highly motivated students we expect to attract,” said Dr. Bruce Stillman, the distinguished cancer researcher who succeeded Dr. Watson as Director of the Laboratory in 1995, “this time frame should be more than adequate to embark on a life-long journey as a scientist.”

The school's shorter training period necessitates a way of teaching and learning that is more intense than that found in other graduate programs. One benefit, Dr. Stillman points out, is that the Watson School curriculum tends to quickly instill self-reliance—the ability to think for oneself and to regard learning as an ongoing process and not confined to a period of formal coursework. “We don’t expect our students to become experts in all subjects,” he has explained. Rather, the school's complementary goals are to demonstrate to students how discoveries in seemingly unrelated fields influence one another, and to teach that learning is a lifelong process that goes hand in hand with research.

Much thought was also given, to the nature of graduate student relationships with faculty. An innovative two-tier mentoring system was devised that would provide each doctoral candidate with an academic mentor from the faculty who would guide their intellectual and individual development in addition to the research mentor who would guide the much more focused thesis research. This would provide the student with two different perspectives, and tend to broaden intellectual horizons. So too would the ability of Watson School students to take advantage of Cold Spring Harbor’s unique status as a crossroads for the international community of biological scientists. Each year, the campus is visited by some 10,000 researchers from all parts of the world. Many come to discuss their work and ideas in over two dozen annual and semi-annual meetings; a smaller number come to the campus to take advanced courses in new techniques in research, one of the unique features of the Laboratory. These represent a unique opportunity for Watson School students to meet scientists and learn about new developments in virtually every important field and subfield of modern biology.

Another distinguishing feature of the planning for WSBS was the imperative that every accepted student be supported by a full stipend and pay nothing for courses or research. This was made possible by the remarkable efforts of former Board President David Luke, who, with his colleagues on and off the Board, succeeded in raising $32 million as an initial endowment for the Watson School. A second campaign, led by Board member Robert Lindsay, raised an additional $15 million during the School’s first years of operation. From the very start, therefore, no Watson School student has had to worry about having his or her studies hinge on the receipt of research grants by faculty members in whose labs their thesis work is based.
THE WATSON SCHOOL IS LAUNCHED
An international recruiting effort helped attract more than 130 applications for admission to the first entering class, that of 1999. Six outstanding students were chosen, each supported by a Watson School Endowed Fellowship. As the first academic year got under way, and students and faculty alike became acclimated to the new program, Dr. Watson gave a series of commemorative lectures, whose subjects included the discovery of the double helix and the genetic code, and the beginnings of the Human Genome Project, of which he was the first director.

The School’s inaugural Convocation was held November 5, beginning the annual tradition of awarding the Honorary Degree of Doctor of Science to individuals who have made significant and distinguished contributions to education in biological science or to the community in general. First to receive this honor were Nobel laureate David Baltimore, Seymour Benzer and Gerald R. Fink. The latter, then director of the Whitehead Institute, and who for 17 summers had taught the famous Yeast Course at CSHL, said in his acceptance speech, “Cold Spring Harbor has created, I think, the most unique postgraduate program in the world and has built it on the presumption of novelty; the Watson School, newly born, is the child of that remarkable program. Science will not be the same.”

By the time the fourth class of Watson School Students matriculated in August 2002, 26 students were enrolled in the program, representing citizens of every continent except for Antarctica. The international diversity of the student body continues Cold Spring Harbor Laboratory’s tradition as an international center of excellence in the biological sciences.

On April 25, 2004, 51 years to the day from the publication by Nature of Crick and Watson’s momentous paper on the double helix, six candidates received their Ph.D. diplomas at the first-ever WSBS graduation. The average time to completion of the Ph.D. for these first six graduates was precisely four years. By now, fully one-half of the 14 3rd- and 4th-year students of the school had authored a published study, and many had multiple publications.

The Watson School has enrolled, at this writing, 186 exceptional students, whose over 450 publications attest to their and the school’s success. Another measure is the number of current students and alumni who have been successful in winning prestigious awards and fellowships. Most important, graduates have been successful in securing faculty positions at world-class research institutions, and have done so much more rapidly, on average, than their peers in other graduate programs.

Currently, 29 of the School’s alumni hold tenure-track faculty positions at leading international academic institutions. Our alumni have also pursued successful non-research careers, for example in publishing, consulting, administration and management. Still others have embraced research in the private sector, most notably in the biotech industry. We applaud the increasingly diverse paths followed by our alumni and want them to influence science research and communication in as broad a way as possible.
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. Watson School students participate in teaching at the DNA Learning Center as part of the curriculum’s instruction in scientific exposition.

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.

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 in the Watson School, works closely with postdoctoral fellows and faculty to enrich the postdoctoral experience at Cold Spring Harbor Laboratory.

POSTGRADUATE MEETINGS & COURSES
Each year the Laboratory offers courses at the postgraduate level, hosts international conferences, and organizes small conferences at the nearby Banbury Center. 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.
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 institutional 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 Watson School of Biological Sciences.

GRADUATE STUDENT HOUSING
The Laboratory provides housing to Watson School 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 in the Watson School of Biological Sciences 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 The Employee (student) Assistance Program (EAP) is available without cost and is onsite at The 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 offsite 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.

OFFICE OF DIVERSITY, EQUITY AND INCLUSION The Office of Diversity, Equity, & Inclusion (DEI) integrates and oversees efforts across multiple divisions to promote equitable and inclusive working environments on campus. CSHL’s DEI office works closely with all the research and training divisions on campus as well as with the affinity groups WiSE (Women in Science & Engineering) and DIAS (Diversity Initiative for the Advancement of STEM), with the goal of supporting and advocating for CSHL employees regardless of their sex, gender, gender expression, sexual orientation, race, ethnicity, religion, nationality, disability status, veteran status, or age.

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 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

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 disproportionately 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.

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

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.
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 four to 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
Two-Tier Mentoring

The Watson 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 Watson 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 and graduate student 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 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 a proposal for postdoctoral studies. 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 his or her 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 Watson School of Biological Sciences graduate program is designed so that students can complete their doctoral studies in four to four and one-half years. If, at four years, a student and thesis committee agree that more than four and one-half years are required to complete the doctoral program, the student and thesis committee may petition for an extension.

Courses

The flexible structure of the Watson School of Biological Sciences permits the design of courses with flexible mandates and formats. Three core courses—Scientific Reasoning and Logic, Scientific Exposition and Ethics, and Research Topics—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 and the 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.
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.

Specialized Disciplines in Biology  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. Currently, the courses offered are: Cancer, Systems Neuroscience, Genetics and Genomics, and Quantitative Biology.

Career Development Course  The career development course is required for third year graduate students, and optional for fourth and fifth year students. In the required Part I of the course, students will have the opportunity to learn about the various career options available to PhDs, work on their own individual development plan, conduct informational interviews and improve communication and mentoring skills. In the optional Part II of the course 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 seven-day 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 Pathogenesis, 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, graduate students in the Watson School of Biological Sciences 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.

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  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.

Transfer of Credit  The Watson School of Biological Sciences does not accept transfer credits. All students are required to complete the School’s curriculum regardless of prior experience.

Ph.D. Degree Requirements  

Coursework  
- Bootcamps  
- Scientific Reasoning and Logic - 8 credits  
- Scientific Exposition and Ethics - 2 credits  
- Research Topics - 0.5 credit  
- Specialized Disciplines in Biology (4) - 1.5 credits each  
- Career Development Course - 1 credit  
- Topics in Biology (4) - 2 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  

Teaching Experience - 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
**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.

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.

The Career Development Program hosts workshops on preparing for a chalk talk, an integral part of the academic job search, and “Coffee Chat” a series in which faculty members share stories of their careers and highlight their philosophies toward identifying interesting scientific questions, lab management, work-life balance, and what it takes to be successful.

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.

---

### Yearly Course Schedule

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>YEAR 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>September</td>
<td>September</td>
<td>September</td>
</tr>
<tr>
<td>Fall term courses</td>
<td>Fall term courses</td>
<td>Fall term courses</td>
<td>Fall term courses</td>
</tr>
<tr>
<td>Laboratory rotations</td>
<td>Laboratory rotations</td>
<td>Laboratory rotations</td>
<td>Laboratory rotations</td>
</tr>
<tr>
<td>Teaching practical</td>
<td>Teaching practical</td>
<td>Teaching practical</td>
<td>Teaching practical</td>
</tr>
<tr>
<td>Topics in Biology courses</td>
<td>Topics in Biology courses</td>
<td>Topics in Biology courses</td>
<td>Topics in Biology courses</td>
</tr>
<tr>
<td>Qualifying exam</td>
<td>Qualifying exam</td>
<td>Qualifying exam</td>
<td>Qualifying exam</td>
</tr>
<tr>
<td>Thesis research</td>
<td>Thesis research</td>
<td>Thesis research</td>
<td>Thesis research</td>
</tr>
<tr>
<td>Thesis advisory committee meetings</td>
<td>Thesis advisory committee meetings</td>
<td>Thesis advisory committee meetings</td>
<td>Thesis advisory committee meetings</td>
</tr>
<tr>
<td>Elective postgraduate courses</td>
<td>Elective postgraduate courses</td>
<td>Elective postgraduate courses</td>
<td>Elective postgraduate courses</td>
</tr>
</tbody>
</table>

---

**Academic Good Standing**

After the student successfully defends their thesis proposal, they must meet with their committee every 6 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 Watson School 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.

**Leave of Absence or Research on a Part-Time Basis**

Students may petition the Dean of the Watson 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 Dean 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.
The Watson School of Biological Sciences is designed for highly qualified and motivated students who desire a Ph.D. in the biological sciences. The program is open to all qualified applicants, irrespective of gender, race, ethnic origin, or creed. To give students personal attention and financial support, the number of matriculating students is limited to ten to twelve 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 in-person interview.

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, 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 Watson School of Biological Sciences is particularly well suited to them. The application deadline is December 1, each year. 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 web site at www.cshl.edu/gradschool.

RECRUITMENT OF INDIVIDUALS FROM UNDERREPRESENTED MINORITIES Cold Spring Harbor Laboratory strives to locate, attract, and place individuals from underrepresented minorities in its research and educational programs. The Watson School of Biological Sciences encourages members of underrepresented minorities to apply to its doctoral program. The faculty and graduate program administrators provide mentoring and guidance to ensure the successful progress of all students.

MASTER OF SCIENCE DEGREE The Watson 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.

Financial Support

The Cold Spring Harbor Laboratory Watson 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 $34,000 per year (and is reviewed annually). In addition, Students are encouraged to seek independent funding through predocotorial fellowships, for example from the National Science Foundation (www.nsf.gov/funding). Students who are awarded a competitive fellowship receive an annual stipend of $37,400.

Students receive an $8,000 annual research and training costs supplement. Students receive a laptop, software, books and other study materials from the School. Cold Spring Harbor Laboratory and the Watson School of Biological Sciences provide complete health and dental insurance, a housing allowance, subsidized on-campus dining costs, affordable on-campus child care, and a $350 gym membership allowance.

WATSON SCHOOL ENDOWED FELLOWSHIPS

AINSLIE FAMILY FELLOWSHIP
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
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
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

The Watson School is also supported by an NRSA Ruth L. Kirschstein institutional training grant from the NIH NIGMS.
Shared Programs with Stony Brook University

Stony Brook University (SBU) was founded more than 50 years ago as one of the State University of New York’s four university centers. SBU is renowned as a major research institute and offers over 40 doctoral programs, largely in the sciences. 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. The success of these collaborations is evidenced by multiple co-authorships on research papers and the success of SBU graduate students who have completed their thesis research at CSHL. 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. After performing their course work at SBU, students who choose to perform their thesis research at CSHL participate in the bi-annual Graduate Student Symposium and the other seminar programs, irrespective of their degree program. CSHL is enthusiastic about its involvement in the shared graduate programs with SBU. The SBU graduate programs that collaborate with CSHL are described below. For more information, we encourage students to visit the websites listed.

**MEDICAL SCIENTIST TRAINING PROGRAM (M.D.-PH.D.)**
Graduates of SBU’s MSTP are equipped to study major medical problems at the basic level, and at the same time, to recognize the clinical significance of their discoveries. Research opportunities span a range of issues central to human health.
http://www.pharm.stonybrook.edu/mstp/

**MOLECULAR AND CELLULAR BIOLOGY**
The graduate program offers training in the modern biological sciences, with over 100 associated faculty whose research spans the areas of cellular and developmental biology, biochemistry and molecular biology, and cellular and molecular pathology.
http://www.stonybrook.edu/mcb/

**MOLECULAR AND CELLULAR PHARMACOLOGY**
This interdisciplinary program provides students with a broad training in the molecular and cellular mechanisms that regulate cell and organ function and the development of pharmacological interventions in disease states.
http://www.pharm.stonybrook.edu/about-graduate-program

**MOLECULAR GENETICS AND MICROBIOLOGY**
The department is the home for research programs in areas ranging from microbial pathogenesis and model organism genetics to cancer biology, with the shared mission of advancing the understanding of human disease.
http://www.mgm.stonybrook.edu

**NEUROSCIENCE AND BEHAVIOR**
Faculty members’ research covers many areas of modern neuroscience, including neural development, circuit function, computation, cellular communication, and neurological and psychiatric diseases.
http://medicine.stonybrookmedicine.edu/neurobiology

**PHYSICS**
Several groups in the department apply the tools of physics to understand biology. Faculty members of the Laufer Center for Physical and Quantitative Biology investigate gene circuits, single-cell evolution, and neuronal information processing, among other areas.
http://graduate.physics.sunysb.edu/

**PHYSIOLOGY AND BIOPHYSICS**
The department’s research specializations include hormonal regulation of cell function and metabolism, with emphasis on cell signaling; biophysical studies of membranes; and cellular physiology and electrophysiology.
http://pnb.informatics.stonybrook.edu/
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 diversity 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 Watson 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 biology, neuroscience, and 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.

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.

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.
Florian Albeau, Associate Professor; Ph.D., Harvard, 2008. Neuronal circuits; sensory coding and synaptic plasticity; neuronal correlates of behavior; olfactory processing.

Anne Churchland, Associate Professor; Ph.D., UC San Francisco, 2003. Decision-making; electrophysiology; sensory processing; vision; audition; neural computation; modeling; behavior.

Alexander Dobin, Assistant Professor; Ph.D., U Minnesota, 2003. Computational genomics; transcriptomics; epigenomics; gene regulation; big data; precision medicine.

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

Mikala Egeblad, Associate Professor; Ph.D., Copenhagen (DK), 2000. Tumor microenvironment; intravital imaging; tumor-associated myeloid cells; breast cancer.

Tatiana Engel, Assistant Professor; Ph.D., Humboldt University (DE), 2017. Computational and theoretical neuroscience, machine learning, stochastic dynamics, non-linear dynamics, high-dimensional inference, neural population dynamics, neural circuit models, decision-making, reward-based learning, attention, working-memory.


Jesse Gillis, Assistant Professor; Ph.D., Toronto (CA), 2007. Gene networks; gene function prediction; guilt by association; neuropsychiatric; hub genes; multifunctionality; computational genomics.

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

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

Molly Hammell, Associate Professor; Ph.D., Dartmouth, 2003. Gene regulatory networks; integrated genomic analysis; bioinformatics; RNA biology; small RNAs.

Z. Josh Huang, Professor; Ph.D., Brandeis, 1994. Neuroscience; experience-dependent development of the neocortex; mouse genetics; neuretrophins.

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

David Jackson, Professor; Ph.D., East Anglia (UK), 1991. Plant development; genetics; cell-to-cell mRNA and protein trafficking.

Tobias Janowicz, Assistant Professor; M.D./Ph.D., University of 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 (IL), 1991. Structural biology; nucleic acid regulation; RNA; molecular recognition; X-ray crystallography.

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

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

Adrian R. Krainer, Professor; Ph.D., Harvard, 1986. Post-transcriptional control of gene expression; pre-mRNA splicing mechanisms; fidelity and genetic diseases; alternative splicing; RNA-protein interactions; cancer.

Alexander Krasnitz, Associate Professor; Ph.D., Tel Aviv (IL), 1990. Genomics of cancer; machine learning for biology; inference from noisy biological data; large-scale numerical computing.


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

Bo Li, Professor; Ph.D., British Columbia (CA), 2003. Neuroscience; glutamatergic synapse; synaptic plasticity; schizophrenia; depression; rodent models of psychiatric disorders.

Zachary Lippman, Professor; HHMI Investigator; Ph.D., Watson School, Cold Spring Harbor Laboratory, 2004. Plant development; genetics; flowering; in fluorescence architecture; sympodial growth, phase transition, heterosis; quantitative genetics.

Robert Maki, Professor; M.D./Ph.D., Cornell U, 1992. Sarcoma; clinical trials; medical oncology; translational research; tumor microenvironment; angiogenesis; epigenetics.

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

David McCandlish, Assistant Professor; Ph.D., Duke U, 2012. Computational biology; sequence-function relationships; population genetics; protein evolution; machine learning.
W. Richard McCombie, Professor; Ph.D., Michigan, 1982. Genomics of psychiatric disorders; genomics of cancer; computational genomics; plant genomics.

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


Pavel Osten, Associate Professor; M.D., Charles University (CZ), 1991; Ph.D., SUNY Downstate Medical Center, 1995. Autism and schizophrenia; gene expression-based mapping of brain activity; anatomical mapping of brain connectivity; high throughput microscopy.

Ullas Pedmale, Assistant Professor; Ph.D., U Missouri, Columbia, 2008. Plant growth and development; light-sensing; cryptochrome; signaling.

Stephen Shea, Associate Professor; Ph.D., 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.

Raffaella Sordella, Associate Professor; Ph.D., Turin (IT), 1998. Molecular therapeutics; signal transduction.

David L. Spector, Professor; Ph.D., Rutgers, 1980. Cell biology; gene expression; nuclear structure; microscopy.

Arne Stenlund, Associate Professor; Ph.D., Uppsala (SE), 1984. Papillomavirus; cancer; DNA replication.

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

Jessica Tollkuhn, Assistant 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. Post-translational 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.

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

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

Doreen Ware, Adjunct Associate Professor; Ph.D., Ohio State, 2000. Computational biology; comparative genomics; genome evolution; diversity; gene regulation; plant biology.

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

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

Alexander Gann, Professor; Ph.D., University of Edinburgh. Dean, Watson School of Biological Sciences.

Terri Grodzicker, Professor; Ph.D., Columbia University. Dean of Academic Affairs.

John R. Inglis, Professor; Ph.D., University of Edinburgh. Executive Director, Cold Spring Harbor Laboratory Press.

David A. Micklos, Professor; M.A., University of Maryland. Executive Director, DNA Learning Center.

David J. Stewart, Professor; Ph.D., University of Cambridge. Director, Cold Spring Harbor Laboratory Meetings and Courses.

Jan A. Witkowski, Professor; Ph.D., University of London. Executive Director, Banbury Center.
Academic Freedom Policy

The right of faculty members and students to academic freedom is fundamental to the scientific and educational mission of the Watson School of Biological Sciences (WSBS) 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 WSBS 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 and the WSBS 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, CSHL, and the WSBS by their research and/or words. As such, WSBS 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 or the WSBS.

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 Watson 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, Katie Raftery - raftery@cshl.edu - (516) 367-8499. Additional information may be found at http://intranet.cshl.edu/administration/human-resources/title-ix.

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.