BIOMEDICAL INFORMATICS

Courses offered by the Program in Biomedical Informatics are listed under the subject code BIOMEDIN on the Stanford Bulletin's ExploreCourses web site.

The program in Biomedical Informatics emphasizes research to develop novel computational methods that can advance biomedicine. Students receive training in the investigation of new approaches to conceptual modeling and to development of new algorithms that address challenging problems in the biological sciences and clinical medicine. Students with a primary interest in developing new informatics methods and knowledge are best suited for this program. Students with a primary interest in the biological or medical application of existing informatics techniques may be better suited for training in the application areas themselves.

Graduate Programs in Biomedical Informatics

The Biomedical Informatics Program is interdepartmental and offers instruction and research opportunities leading to M.S. and Ph.D. degrees in Biomedical Informatics. All students are required to complete the core curriculum requirements, and also to complete additional course work to fulfill degree requirements and pursue their technical interests and goals as specified for each degree program.

The program can provide flexibility and can complement other opportunities in applied medical research at Stanford. Special arrangements may be made for those with unusual needs or those simultaneously enrolled in other degree programs within the University. Similarly, students with prior relevant training may have the curriculum adjusted to eliminate requirements met as part of prior training.

The University requirements for the M.S. degree are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees)" section of this bulletin.

Master of Science in Biomedical Informatics (Academic)

This degree is designed for individuals who wish to undertake in-depth study of biomedical informatics with research on a full-time basis. Normally, a student spends two years in the program and implements and documents a substantial project by the end of the second year. The first year involves acquiring the fundamental concepts and tools through course work and research project involvement. Academic M.S. students are expected to devote 50 percent or more of their time participating in research projects. Research rotations are not required, but can be done with approval of the academic adviser or training program director. Graduates of this program are prepared to contribute creatively to basic or applied projects in biomedical informatics. This degree requires a written research paper to be approved by two faculty members.

Master of Science in Biomedical Informatics (Professional/Honors Cooperative Program)

This degree is designed primarily for the working professional who already has advanced training in one discipline and wishes to acquire interdisciplinary skills. Although many classes necessary for the degree are available online, some requirements may be fulfilled through implementation of an alternative plan to be approved by the program. The professional M.S. is offered in conjunction with Stanford Center for Professional Development (SCPD), which establishes the rates of tuition and fees. The program uses the honors cooperative program (HCP) model, which assumes that the student is working in a corporate setting and is enrolled in the M.S. on a part-time basis. The student has up to five years to complete the program. Research projects are optional; if interested, the student must make arrangements with program faculty. Graduates of this program are prepared to contribute creatively to basic or applied projects in biomedical informatics.

Master of Science in Biomedical Informatics (Coterminal)

The coterminal degree program allows Stanford University undergraduates to study for a master's degree while completing their bachelor's degree(s) in the same or a different department. See the "Coterminal Degrees (http://exploredegrees.stanford.edu/cotermdegrees)" section of this bulletin for additional information. For University coterminal degree program rules and University application forms, see the Registrar's web site (https://registrar.stanford.edu/students/coterminal-degree-programs/applying-coterm).

The coterminal Master of Science program follows the same program requirements as the Master of Science (Professional), except for the requirement to be employed in a corporate setting. The coterminal degree is available only to current Stanford undergraduates. Coterminal students are enrolled full-time and courses are taken on campus. Research projects are optional; if interested, the student must make arrangements with program faculty. Graduates of this program are prepared to contribute creatively to basic or applied projects in biomedical informatics.

Application to the Coterminal Program

For complete information, see the program's Coterminal Master's Degree (http://bmi.stanford.edu/prospective-students/masters-degree-coterminal-biomedical-informatics.html) page.

1. Submit the University Coterminal Online Application (https://applyweb.com/stanterm).
2. Submit the program's Coterminal Supplemental Application Form (http://bmi.stanford.edu/prospective-students/FilesProspectiveStudents/CotermSupplementApp.doc).
3. Submit your academic resume or curriculum vitae.
4. Submit a one-page Statement of Purpose describing how and why the BMI program is well matched to your interests.

Applicants to the coterminal M.S. programs are not required to submit GRE scores. GRE scores are recommended, especially if you have relatively little prior course work in quantitative and computational areas. The TOEFL is not required.

Advising

Upon acceptance into the program, students are assigned a BMI academic adviser. The student revises the program proposal at this time. Students should contact the BMI program office for advice about coterminal status between acceptance and the first appointment with the BMI academic adviser.

University Coterminal Requirements

Coterminal master's degree candidates are expected to complete all master's degree requirements as described in this bulletin. University requirements for the coterminal master's degree are described in the "Coterminal Master's Program (http://exploredegrees.stanford.edu/cotermdegrees)" section. University requirements for the master's degree are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees/#masterstext)" section of this bulletin.

After accepting admission to this coterminal master's degree program, students may request transfer of courses from the undergraduate to the graduate career to satisfy requirements for the master's degree. Transfer of courses to the graduate career requires review and approval of both the undergraduate and graduate programs on a case by case basis.

In this master's program, courses taken three quarters prior to the first graduate quarter, or later, are eligible for consideration for transfer to the graduate career. No courses taken prior to the first quarter of the sophomore year may be used to meet master's degree requirements.

Course transfers are not possible after the bachelor's degree has been conferred.

The University requires that the graduate adviser be assigned in the student's first graduate quarter even though the undergraduate career may still be open. The University also requires that the Master's Degree Program Proposal be completed by the student and approved by the department by the end of the student's first graduate quarter.

Core Curriculum and Program Requirements in Biomedical Informatics

Core Curriculum in Biomedical Informatics (31 units)

Students are expected to participate regularly in BIOMEDIN 201 Biomedical Informatics Student Seminar and a research colloquium. Regardless of whether they are enrolled, they should attend all meetings throughout their graduate training, and attend a research colloquium appropriate to their interests. All students are expected to fulfill the following requirements:

- **Core Biomedical Informatics (9 or more units)**
  Students are expected to complete the core offerings in biomedical informatics. These courses should be taken for a grade.
  a. BIOMEDIN 212 Introduction to Biomedical Informatics Research Methodology
  b. and two of the courses listed below. Additional core course requirements are listed under the M.S. degree program.

		Units
BIOMEDIN 210	Modeling Biomedical Systems: Ontology, Terminology, Problem Solving	3
BIOMEDIN 214	Representations and Algorithms for Computational Molecular Biology	3-4
BIOMEDIN 215	Data Driven Medicine	3
BIOMEDIN 217	Translational Bioinformatics	4
BIOMEDIN 260	Computational Methods for Biomedical Image Analysis and Interpretation	3-4

- **Computer Science, Statistics, Mathematics & Engineering (18 units)**
  Students are expected to create a program of study with graduate-level courses in computer science, statistics and other technical informatics-related disciplines to achieve in-depth mastery. The program of study may focus on aspects of these disciplines including machine learning, statistical modeling, artificial intelligence, data mining, image analysis, human-computer interaction and data visualization. A complete list of courses accepted for this requirement is on the BMI website. The following are required:
  a. CS 161 Design and Analysis of Algorithms
  b. STATS 200 Introduction to Statistical Inference
  c. STATS 315A Modern Applied Statistics: Learning is strongly recommended.
  d. No more than 9 units in courses numbered 100-199, and the rest should be 200 or above.
  e. CS 106A Programming Methodology and CS 106B Programming Abstractions cannot be counted for this requirement.
  f. All courses should be formal classroom-based courses, not research units.
  g. Up to 6 units of this portion of the core curriculum may be taken on a Satisfactory/No credit basis.

- **Social and Ethical Issues (4 units)**
  Students are expected to be familiar with issues regarding responsible conduct of research, reproducibility of research, and ethical, legal, social, organizational and behavioral aspects of the impact of biomedical informatics technologies on society. Courses that fulfill this requirement can be found by entering "bmi::ethics" in the Explore Courses search box. PhD students and Academic M.S. students should take MED 255 The Responsible Conduct of Research in their first year. These courses may be taken on a Satisfactory/No credit basis.

		Units
BIOE 131	Ethics in Bioengineering	3
BIOE 450	Advances in Biotechnology	3
BIOMEDIN 256	Economics of Health and Medical Care	5
BIOMEDIN 432	Analysis of Costs, Risks, and Benefits of Health Care	4
BIOS 224	Big Topics in Stem Cell Ethics	2
BIOS 258	Ethics, Science, and Society	1
CS 181	Computers, Ethics, and Public Policy	4
CS 181W	Computers, Ethics, and Public Policy	4
CSB 272	Research Ethics	1
GENE 210	Genomics and Personalized Medicine	3
HRP 209	Health Law: The FDA	2-3
HRP 210	Health Law and Policy	3
HRP 211	Law and the Biosciences: Neuroscience	3
HRP 221	Law and the Biosciences: Genetics	3
HRP 256	Economics of Health and Medical Care	5
HRP 273	Essentials of Clinical Research at Stanford	1
HRP 392	Analysis of Costs, Risks, and Benefits of Health Care	4
HUMBIO 174	Foundations of Bioethics	3
INDE 212	Medical Humanities and the Arts	2
ME 208	Patent Law and Strategy for Innovators and Entrepreneurs	2-3
MED 242	Physicians and Human Rights	1
MED 255	The Responsible Conduct of Research	1
MED 255C	The Responsible Conduct of Research for Clinical and Community Researchers	1
MS&E 256	Technology Assessment and Regulation of Medical Devices	3
MS&E 278	Patent Law and Strategy for Innovators and Entrepreneurs	2-3
NBIO 101	Social and Ethical Issues in the Neurosciences	2-4
PEDS 251A	Medical Ethics I	2
PEDS 251B	Medical Ethics II	2

Program Requirements for the Academic M.S., HCP Professional M.S., and Coterminal M.S. Degrees

Students enrolled in any of the M.S degrees must complete the program requirements in order to graduate.

- The core curriculum generally entails a minimum of 31 units of course work, but can require more or less depending upon the courses chosen and the previous training of the student.
- M.S. candidates should complete additional course work and program requirements as outlined below. No one is required to take

courses in an area in which he or she has already been adequately trained; under such circumstances, students are permitted to skip courses or substitute more advanced work using a formal annual process administered by the BMI executive committee. Students design appropriate programs for their interests with the assistance and approval of their Biomedical Informatics academic adviser.

- At least 21 units of formal letter-graded coursework are expected for all MS and PhD candidates.

Programs of at least 45 Stanford units that meet the following guidelines are normally approved:

1. Completion of the core curriculum with overall GPA of 3.0.
2. Two additional BMI core offerings from among BIOMEDIN 210 Modeling Biomedical Systems: Ontology, Terminology, Problem Solving, BIOMEDIN 214 Representations and Algorithms for Computational Molecular Biology, BIOMEDIN 215 Data Driven Medicine, BIOMEDIN 217 Translational Bioinformatics and BIOMEDIN 260 Computational Methods for Biomedical Image Analysis and Interpretation (6-7 units) that were not taken to satisfy the core curriculum. These courses should be taken for a grade.
3. Unrestricted Electives needed to complete 45 units. Students may fulfill this requirement with any Stanford graduate courses, including courses taken to satisfy program prerequisites.
4. At least 23 units of courses must be at the level 200 or above.
5. A cumulative GPA of 3.0 or greater to remain in good academic standing.
6. Students are expected to participate regularly in BIOMEDIN 201 Biomedical Informatics Student Seminar and a research colloquium. HCP professional masters students who are able to attend classes on campus should participate regularly.
7. Academic M.S. students who are funded by the program are required to be a teaching assistant for one course; those students may register for 1-3 units of BIOMEDIN 290 Biomedical Informatics Teaching Methods .
8. HCP professional masters students who are local are encouraged to participate in on-campus coursework and seminars.
9. Masters students should sign up for BIOMEDIN 801 TGR Master's Project for their project units after completing their 45-unit residency requirement.

Doctor of Philosophy in Biomedical Informatics

Individuals wishing to prepare themselves for careers as independent researchers in biomedical informatics, with applications experience in bioinformatics, clinical informatics, or imaging informatics, should apply for admission to the doctoral program. The University's basic requirements for the doctorate (residence, dissertation, examination, and so on) are discussed in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees)" section of this bulletin.

The Core Curriculum in Biomedical Informatics (31 units) is outlined below. The Ph.D. program requires an additional 21 units of coursework, to complete a total of 52 units.

Core Curriculum in Biomedical Informatics (31 units)

Students are expected to participate regularly in BIOMEDIN 201 Biomedical Informatics Student Seminar and a research colloquium. Regardless of whether they are enrolled, they should attend all meetings throughout their graduate training, and attend a research colloquium appropriate to their interests. All students are expected to fulfill the following requirements:

- **Core Biomedical Informatics Courses (9 or more units)**
  Students are expected to complete the core offerings in biomedical informatics. These courses should be taken for a grade.
  a. BIOMEDIN 212 Introduction to Biomedical Informatics Research Methodology
  b. and two of the courses listed below.

		Units
BIOMEDIN 210	Modeling Biomedical Systems: Ontology, Terminology, Problem Solving	3
BIOMEDIN 214	Representations and Algorithms for Computational Molecular Biology	3-4
BIOMEDIN 215	Data Driven Medicine	3
BIOMEDIN 217	Translational Bioinformatics	4
BIOMEDIN 260	Computational Methods for Biomedical Image Analysis and Interpretation	3-4

- **Computer Science, Statistics, Mathematics & Engineering (18 units)**
  Ph.D. students are expected to create a program of study with graduate-level courses in computer science, statistics and other technical informatics-related disciplines to achieve in-depth mastery. The program of study may focus on aspects of these disciplines including machine learning, statistical modeling, artificial intelligence, data mining, image analysis, human-computer interaction and data visualization. A complete list of courses accepted for this requirement is on the BMI website. The following are required:
  a. CS 161 Design and Analysis of Algorithms
  b. STATS 200 Introduction to Statistical Inference
  c. STATS 315A Modern Applied Statistics: Learning is strongly recommended.
  d. No more than 9 units in courses numbered 100-199, and the rest should be 200 or above.
  e. CS 106A Programming Methodology and CS 106B Programming Abstractions cannot be counted for this requirement.
  f. All courses should be formal classroom-based courses, not research units.
  g. Up to 6 units of this portion of the core curriculum may be taken on a Satisfactory/No credit basis.
- **Social and Ethical Issues (4 units)**
  Students are expected to be familiar with issues regarding responsible conduct of research, reproducibility of research, and ethical, legal, social, organizational and behavioral aspects of the impact of biomedical informatics technologies on society. Courses that fulfill this requirement can be found by entering "bmi::ethics" in the Explore Courses search box. PhD students students should take MED 255 The Responsible Conduct of Research in their first year. These courses may be taken on a Satisfactory/No credit basis.

		Units
BIOE 131	Ethics in Bioengineering	3
BIOE 450	Advances in Biotechnology	3
BIOMEDIN 256	Economics of Health and Medical Care	5
BIOMEDIN 432	Analysis of Costs, Risks, and Benefits of Health Care	4
BIOS 224	Big Topics in Stem Cell Ethics	2
BIOS 258	Ethics, Science, and Society	1
CS 181	Computers, Ethics, and Public Policy	4
CS 181W	Computers, Ethics, and Public Policy	4
CSB 272	Research Ethics	1
GENE 210	Genomics and Personalized Medicine	3
HRP 209	Health Law: The FDA	2-3
HRP 210	Health Law and Policy	3
HRP 211	Law and the Biosciences: Neuroscience	3

HRP 221	Law and the Biosciences: Genetics	3
HRP 256	Economics of Health and Medical Care	5
HRP 273	Essentials of Clinical Research at Stanford	1
HRP 392	Analysis of Costs, Risks, and Benefits of Health Care	4
HUMBIO 174	Foundations of Bioethics	3
INDE 212	Medical Humanities and the Arts	2
ME 208	Patent Law and Strategy for Innovators and Entrepreneurs	2-3
MED 242	Physicians and Human Rights	1
MED 255	The Responsible Conduct of Research	1
MED 255C	The Responsible Conduct of Research for Clinical and Community Researchers	1
MS&E 256	Technology Assessment and Regulation of Medical Devices	3
MS&E 278	Patent Law and Strategy for Innovators and Entrepreneurs	2-3
NBIO 101	Social and Ethical Issues in the Neurosciences	2-4
PEDS 251A	Medical Ethics I	2
PEDS 251B	Medical Ethics II	2

Program Requirements for the Biomedical Informatics PhD:

1. Completion of the Core Curriculum (31 or more units) described above.
2. Additional technical electives (6 units) drawn from the courses in Computer Science, Mathematics, Statistics, and Engineering as specified for the Core Curriculum above.
3. Domain biology or medicine (6 units). Students should take classes relevant to their application area interests.
4. The above three requirements should be completed by the end of the second year of graduate study.
5. Unrestricted electives (9 units). Students may fulfill this requirement with any Stanford graduate courses, including courses taken to satisfy program prerequisites.
6. A cumulative GPA of 3.0 or greater to remain in good academic standing.
7. In the first year, at least two research rotations are required.
8. Each student is required to be a teaching assistant for two courses as assigned by the Biomedical Informatics Executive Committee; one should be completed in the first two years of study. Students may register for up to 3 units of BIOMEDIN 290 Biomedical Informatics Teaching Methods to obtain credit for teaching assistantships.
9. Doctoral students are generally advanced to Ph.D. candidacy after passing the qualifying exam, which takes place by the end of the second year of training. A student's academic adviser has primary responsibility for the adequacy of the program, which is regularly reviewed by the Biomedical Informatics Executive Committee. The student must fulfill these requirements and apply for admission to candidacy for the Ph.D. by the beginning of the third year.
10. During the third year of training, each doctoral student is required to give a thesis pre-proposal seminar that describes evolving research plans.
11. The most important requirement for the Ph.D. degree is the dissertation. Each student must secure the agreement of a member of the BMI advising faculty to act as the doctoral dissertation adviser or co-adviser.
12. After application for Terminal Graduate Registration (TGR) status and completion of 135 units, the Ph.D. candidate should register each quarter for BIOMEDIN 802 TGR PhD Dissertation so that their research effort may be counted toward the degree.
13. Before the end of the fourth year, each student must orally present a written thesis proposal for the written dissertation and must orally defend the thesis proposal before a University oral examination committee that includes at least one member of the BMI Advising Faculty. The committee determines whether the student's general knowledge of the field and the details of the planned thesis are sufficient to justify proceeding with the dissertation.
14. At the completion of training, while still matriculated and shortly prior to deposit of the dissertation, the student gives a final talk describing his or her final research results. No official additional oral examination is required upon completion of the written dissertation; the oral defense of the dissertation proposal satisfies the University oral examination requirement.
15. The student is expected to demonstrate an ability to present scholarly material and research in a lecture at a formal seminar.
16. The student is expected to demonstrate an ability to present scholarly material in concise written form. Each student is required to write a paper suitable for publication, usually discussing his or her doctoral research project. This paper must be approved by the student's adviser as suitable for submission to a refereed journal before the doctoral degree is conferred.
17. The dissertation must be accepted by a doctoral dissertation reading committee composed of the principal dissertation adviser and two other readers. A fourth reader may be added at the discretion of the student and the principal adviser.

Ph.D. Minor in Biomedical Informatics

For a Ph.D. minor in Biomedical Informatics (BMI), a candidate must complete a minimum of 20 unduplicated units of biomedical informatics course work, including 12 units in BMI core courses from:

		Units
BIOMEDIN 210	Modeling Biomedical Systems: Ontology, Terminology, Problem Solving	3
BIOMEDIN 212	Introduction to Biomedical Informatics Research Methodology	3
BIOMEDIN 214	Representations and Algorithms for Computational Molecular Biology	3-4
BIOMEDIN 215	Data Driven Medicine	3
BIOMEDIN 217	Translational Bioinformatics	4
BIOMEDIN 260	Computational Methods for Biomedical Image Analysis and Interpretation	3-4

The candidate must complete the one-unit MED 255 The Responsible Conduct of Research or an approved substitute.

The remaining units must be courses that would count towards the BMI master's degree, taken from these areas:

- Computer Science, Probability, Statistics, Machine Learning, Mathematics, Engineering
- Biomedicine
- Other BMI courses from the list above

Students are expected to participate regularly in BIOMEDIN 201 (p. 1) Biomedical Informatics Student Seminar.

Courses used for the BMI Ph.D. minor may not be double-counted to meet the requirements of a master's or Ph.D. degree.

All courses used for the BMI Ph.D. minor, except MED 255, must be taken for a letter grade and passed with an overall GPA of 3.0 or better.

This degree offering became effective in Autumn Quarter 2010-11. Courses taken at Stanford prior to that date may be counted towards the BMI Ph.D. minor degree.

Application Process

Stanford Ph.D. students apply using the Application for Ph.D. Minor (https://stanford.app.box.com/v/app-phd-minor) form and must provide an unofficial Stanford transcript as well as a statement of purpose for adding the Ph.D. minor degree. Submit the form and accompanying materials to the Biomedical Informatics program.

Advising

A minor program adviser is assigned from the Biomedical Informatics Executive Committee or advising faculty upon admission to the program.

Committee: Russ B. Altman (Chair and Program Director), Mark A. Musen (Co-Director), Steven C. Bagley (Executive Director), Manisha Desai, Teri Klein, Daniel L. Rubin, Nigam Shah, Dennis P. Wall

*Participating Faculty and Staff by Department**

Biochemistry: Douglas Brutlag (Professor Emeritus), Rhiju Das (Associate Professor), Ronald Davis (Professor), James Ferrell (Professor), Julia Salzman (Assistant Professor), Julie Theriot (Professor)

Bioengineering: Russ B. Altman (Professor), Kwabena Boahen (Professor), Markus Covert (Associate Professor), Scott Delp (Professor), Ingmar Riedel-Kruse (Assistant Professor)

Biology: Hunter Fraser (Associate Professor), Dmitri Petrov (Professor), Jonathan Pritchard (Professor)

Biomedical Data Science: Russ B. Altman (Professor), Euan Ashley (Associate Professor), Serafim Batzoglou (Professor), Carlos Bustamante (Professor), Manisha Desai (Professor), Bradley Efron (Professor), Andrew Gentles (Assistant Professor), Olivier Gevaert (Assistant Professor), Trevor Hastie (Professor), Tina Hernandez-Boussard (Associate Professor), Iain Johnstone (Professor), Purvesh Khatri (Assistant Professor), Teri Klein (Professor), Philip Lavori (Professor), Ying Lu (Professor), Mark A. Musen (Professor), Richard Olshen (Professor Emeritus), Sylvia Plevritis (Professor), Daniel L. Rubin (Associate Professor), Chiara Sabatti (Professor), Julia Salzman (Assistant Professor), Nigam Shah (Associate Professor), Lu Tian (Associate Professor), Robert Tibshirani (Professor), Dennis P. Wall (Associate Professor), Wing H Wong (Professor), James Zou (Assistant Professor)

Richard Olshen (Professor), Chiara Sabatti (Associate Professor), Robert Tibshirani (Professor), Dennis P. Wall (Associate Professor)

Chemical and Systems Biology: Joshua Elias (Assistant Professor), James Ferrell (Professor)

Chemistry: Vijay Pande (Professor)

Computer Science: Serafim Batzoglou (Professor), Gill Bejerano (Associate Professor), David Dill (Professor), Ronald Dror (Associate Professor), Leonidas Guibas (Professor), Anshul Kundaje (Assistant Professor), Terry Winograd (Professor Emeritus)

Dermatology: Paul Khavari (Professor)

Developmental Biology: Gill Bejerano (Associate Professor)

Electrical Engineering: Kwabena Boahen (Professor)

Energy Resources Engineering: Margot Gerritsen (Associate Professor)

Genetics: Russ B. Altman (Professor), Euan Ashley (Associate Professor), Steven C. Bagley (Senior Research Engineer), Michael Bassik (Assistant Professor), Ami Bhatt (Assistant Professor), Carlos Bustamante (Professor), J. Michael Cherry (Professor, Research), Stanley N. Cohen (Professor), Christina Curtis (Assistant Professor), Ronald Davis (Professor), William Greenleaf (Assistant Professor), Karla Kirkegaard (Professor), Teri E. Klein (Senior Research Scientist), Anshul Kundaje (Assistant Professor), Jin Billy Li (Assistant Professor), Stephen B. Montgomery (Assistant Professor), Jonathan Pritchard (Professor), Gavin Sherlock (Professor), Arend Sidow (Professor), Michael P. Snyder (Professor), Hua Tang (Professor)

Health Research and Policy: Trevor Hastie (Professor), Mark Hlatky (Professor)

Management Science and Engineering: Margaret Brandeau (Professor), Ross D. Shachter (Associate Professor)

Medicine: Russ B. Altman (Professor), Euan Ashley (Associate Professor), Ami Bhatt (Assistant Professor), Jayanta Bhattacharya (Professor), Catherine Blish (Assistant Professor), Carol Cain (Adjunct Assistant Professor), Stanley Cohen (Professor), Christina Curtis (Assistant Professor), Manisha Desai (Professor), Michel Dumontier (Associate Professor), Andrew Gentles (Assistant Professor), Olivier Gevaert (Assistant Professor), Mary Goldstein (Professor), Summer Han (Assistant Professor), Tina Hernandez-Boussard (Associate Professor), Michael Higgins (Adjunct Associate Professor), Mark Hlatky (Professor), Hanlee P. Ji (Associate Professor), Purvesh Khatri (Assistant Professor), Teri Klein (Professor), Lianne Kurina (Associate Professor, Teaching), Curtis Langlotz (Professor), Henry Lowe (Associate Professor), Mark A. Musen (Professor), Douglas K. Owens (Professor), Natalie Pageler (Clinical Associate Professor), David Relman (Professor), Daniel L. Rubin (Associate Professor), Robert W. Shafer (Professor, Research), Nigam Shah (Associate Professor), Samson Tu (Senior Research Engineer), P.J. Utz (Professor)

Mechanical Engineering: Scott Delp (Professor)

Microbiology and Immunology: Karla Kirkegaard (Professor), Garry Nolan (Professor), David Relman (Professor), Julie Theriot (Professor)

Neurosurgery: Summer Han (Assistant Professor)

Operations, Information and Technology: Mohsen Bayati (Associate Professor)

Pathology: Stephen B. Montgomery (Assistant Professor), Arend Sidow (Professor)

Pediatrics: Gill Bejerano (Associate Professor), Natalie Pageler (Clinical Associate Professor), Jonathan Palma (Clinical Assistant Professor), Dennis P. Wall (Associate Professor)

Psychiatry and Behavioral Sciences: Vinod Menon (Professor, Research)

Psychology: Russell Poldrack (Professor)

Radiation Oncology: Lei Xing (Professor)

Radiology: Sam (Sanjiv) Gambhir (Professor), Curtis Langlotz (Professor), Parag Mallick (Assistant Professor, Research), Sandy A. Napel (Professor), David Paik (Adjunct Assistant Professor), Sylvia Plevritis (Professor), Daniel L. Rubin (Associate Professor)

Statistics: Bradley Efron (Professor), Trevor J. Hastie (Professor), Susan Holmes (Professor), Iain Johnstone (Professor), Art Owen (Professor), Chiara Sabatti (Professor), Robert Tibshirani (Professor), Wing H Wong (Professor)

Structural Biology: Michael Levitt (Professor)

Surgery: Tina Hernandez-Boussard (Associate Professor), Thomas Krumel (Professor))

* Research opportunities are not limited to faculty and departments listed.