

Master of Science in Human Genetics and Genetic Counseling Proposed Curriculum for 2008-2009 Entrants

First year, Autumn (Full Time >11 units)

GENE 271 Human Molecular Genetics, 4 units (Francke and Ormond)
DBIO 201 Development and Disease Mechanisms, 4 units, (Kingsley, Porzig, Kim)
GENE 284 Medical Genetics Seminar, 1 unit (Staff)
GENE 285A Genetic Counseling Seminar, 2 unit (Ormond)
GENE 272 Introduction to Medical Genetics, 2 units (Ormond and Hudgins)
GENE 273 Introduction to Clinical Genetics Testing, 2 units (Ormond, Cherry, Cowan and Schrijver)
GENE 275 Role Play and Genetic Counseling Observations, 2 units (Ormond, Chen and Tung)
MED 255 Responsible Conduct of Research, 1 unit (SCBE Staff)

Total units: 18

First year, Winter (Full Time >11 units)

GENE 284 Medical Genetics Seminar, 2 units (Staff)
GENE 285B Genetic Counseling Seminar, 2 units (Ormond)
GENE 276, Clinical Rotations, 5 units (staff/Ormond)
GENE 274A A Case Based Approach to Clinical Genetics I, 2 units (Hudgins/Ormond)
GENE 278 or 279 or 280 or 281 (select one; tutorial for rotation), 1-2 unit (online courses)
GENE 282 Research Seminar, 2 units (Ormond)
GENE 299 Directed Readings, 1 unit (staff)
MED 250a Medical Ethics 1, 2 units (Magnus)

Total units – 17-18

First year, Spring (Full Time >11 units)

GENE 238 Current Concepts and Dilemmas in Genetic Testing, 2 units (Tobin, Cowan, Schrijver)
GENE 284 Medical Genetics Seminar, 2 units (Staff)
GENE 285C Genetic Counseling Seminar, 2 units (Ormond)
GENE 276, Clinical Rotations, 5 units (staff/Ormond)
GENE 274B A Case Based Approach to Clinical Genetics II, 2 units (Hudgins/Ormond)
GENE 278 or 279 or 280 or 281 (select one; tutorial for rotation), 1 unit (online courses)
(GENE 299 Directed readings, 1 unit (staff); only if research elective 3 units.)
Elective for research preparation, 3-5 units (Faculty outside of the department)

Total units – 14 + research electives

(Note: if students register for 5 unit elective, extra tuition fees may apply)

First year, Summer

Students will complete clinical rotations on a full time (~40 hour/week) basis, and work on their research projects. Students will not sign up for any academic credits during this time.

Second year, Autumn (Full time 8-10 units)

GENE 284 Medical Genetics Seminar, 2 unit (Staff)

GENE 278, 279 or 280 or 281 (if not yet completed; tutorial for rotation), 1 unit (online courses)
or GENE 299 (directed readings), 1 unit, staff

GENE 286A Advanced Genetic Counseling conference, 2 units (Ormond and staff)
Elective, 3-5 units

Note: students will also complete research projects and clinical rotations during this quarter, but will not register for them.

Total units 5 + 3-5 in electives (up to 10 without extra fees)

Second year, Winter (Full time 8-10 units)

GENE 284 Medical Genetics Seminar, 2 unit (Staff)

GENE 286B Advanced Genetic Counseling Conference, 2 units (Ormond)

GENE 299 directed readings, 1 unit (staff)

Elective 3-5 units

Note: students will also complete research projects and clinical rotations during this quarter, but will not register for them.

Total units 5 + 3-5 in electives (up to 10 without extra fees)

Second year, Spring (Full time 8-10 units)

GENE 284 Medical Genetics Seminar, 2 unit (Staff)

GENE 286C Advanced Genetic Counseling Conference, 2 units (Ormond)

GENE 299 Directed Readings 2 units (staff)

Elective 3-5 units

Note: students will also complete research projects and clinical rotations during this quarter, but will not register for them.

Total units 6 + 3-5 in electives (up to 10 without extra fees)

Total Units: ~80-86 (depending on elective selections)

Note: GENE 278, 279, 280 and 281 are online courses in prenatal, pediatrics, metabolic and cancer genetics that will be taken concurrently with the relevant clinical rotations.

Sample Electives

(Please note, you are expected to take a research elective in Spring I, and 3-5 units of electives in each quarter of Fall II, Winter II, Spring II). You can take any course at Stanford at the 100-level or higher.

Genetics Focus

GENE 211 Genomics, (3 units, Winter)
GENE 215 Frontiers in Biological Research, (1 unit, fall, Winter, Spring)
GENE 244 Statistical Genetics (4 units, Fall)
GENE 344A Genetic epidemiology (3 units, winter)
DBIO 257 Stem cells (3 units, spring)
DBIO 210 Developmental biology (5 units, spring)
MCP 221 Cell Biology (5 units, winter)
BIOSCI 230 Molecular Interventions in Human Disease (may substantially overlap with med gen) (2-3 units, fall)

Law and Ethics focus

GENE 104Q Law and the Biosciences, (3 units, Spring)
HRP 210 Health Law and Policy, (3 units, fall)
INDE 212 The Human Condition: Medicine, Arts and Humanities (3-4 units, fall)
INDE 136 Foundations of Bioethics, (3 units, Winter)
MED 250B Medical Ethics I, (2 units, spring)

Ethnocultural Issues

HRP 212 Crosscultural Medicine, (3 units, Spring)
EDUC 233A. Counseling Interventions from a Multicultural Perspective (3 units, fall)
HRP 280, 281, 282 Medical Spanish, (3 units all quarters)
CASA 160/260: Race, Genetics, and Interpreting Difference (offered every other year, fall)
INDE 244: Ethnicity and Medicine (1-3 units, spring)
SOC 241B: Race, ethnicity, religion and health. (5 units, spring)

Professional and Leadership Development

HRP 214/215 Scientific Writing, (2-3 units, Win)
BIOSCI 388 Communication and leadership skills (2 units)
BIOSCI 385 Speaking about Science (2 units q 2 years)
CTL 215 Voice Workshop (1 unit, Fall, Winter, Spring)
CTL 217 The art of effective speaking. (3 units, Fall, Winter)
CTL 280 Interpersonal and small group communication. (3 units, Winter)
CTL 219 Oral communication for Graduate students. (1-3 units, spring, summer)
ENGR 103 Public Speaking (3 units, all quarters)
ENGR 202W Technical and Professional Writing (3 units, all quarters)
LAW 628 Interpersonal influence and Leadership (3-4 units, Winter and Spring)
IMMUNOL 240: Professional and Leadership development. (Spring).

Research and Clinical Studies focus

HRP 207 Issues and Methods of Health Services and Policy Research, (2 units, fall)
HRP 225 Design and Conduct of Clinical and Epidemiologic Studies, (3-4 units, fall)
HRP 251 Design and Conduct of Clinical Trials (3 units, Spring)

Possible research electives

COMM 239. Questionnaire Design for Surveys and Laboratory Experiments (4 units, Spring)
COMM 206. Communication Research Methods, (5 units, Spring)
BIOMEDIN 303 Stats for research (1 unit, every 2 years)
Educ 260X Understanding statistical models and social science applications
SOC 182 Designing Surveys for Social Science Research —3 units, Spr (Staff)
SOC 183 Qualitative Methods in Social Science Research —3-5 units, Spr (Staff)

Cancer Genetics Focus

HRP 230 Cancer Epidemiology, (3 units, Winter)
CBIO 241 Molecular, Cellular, and Genetic Basis of Cancer, (5 units, Fall)
BIOSCI 205 DNA repair and genomic stability (3 units, spring)
CASA 174: Culture of disease: Cancer. (5 units, winter).

Neurology electives

NBIO 201 Social and ethical issues in the neurosciences (2-4 units, spring)
NBIO 206 Nervous system (with laboratory) (7-8 units, winter)
NBIO 227 Understanding techniques in neuroscience (2 units, fall)
COMP MED 207 Comparative neuroanatomy (4 units)
NBIO 216 Genetic Analysis of Behavior, (4 units)
BOSCI 265 Cell and Molecular therapeutic approaches to neurological disorders (1 unit, winter)

Other disease specific and specialty electives

BIOMEDIN 204 Pharmacogenomics (1 unit; internet course, possibly in conjunction with “rotation”)
HRP 234 Foundations of Pharmacoepidemiology, (2-3 units, Spring)
HRP 391 Political Economy of Health Care in the United States, (4 units, Spring)
DBIO 202 Assisted Reproductive Technologies (ART) (1-3 units, Winter)
BIOSCI 212 Human Physiology (winter)

Focus/Certificate in Bioinformatics and/or Computational Genomics ()

BIOC 218—Computational Molecular Biology
BMI 214—Representations and Algorithms in Computational Biology
SB 228—Protein and Nucleic Acid Structure, Dynamics, and Engineering.
BMI 234—Biomedical Genomics
STAT 366—Computational Biology
BMI 262/CS 262—Computational Molecular Genomics

Other psychosocial courses of potential interest:

FEMST 260/360: Seminar on women’s health: women and disabilities. (5 units, spring)
PSYCH 101 Community health psychology (4 units, winter)
PSYCH 119. Public policy and psychology (5 units, spring)
PUBPOL 205A. Judgement and decision-making. (4 units, fall).