NLM Training Program in Biomedical Informatics and Data Science:

Approved Electives by institution

Rice University

See this link to the course catalog, and the form and deadlines for inter-institutional course registration for non-Rice students.

Please note that Rice does not post course schedules for the entire academic year, but rather posts the following semester’s courses towards the end of the prior semester (~in late March for Fall semester, late October for Spring). Therefore, look at past semesters to learn whether a course is offered in the Fall or Spring semester so you can plan your curriculum timeline.

**Bioengineering**
- BIOE 552 Intro to Computational Systems Biology: Modeling & Design Principles of Biochem Networks
- BIOE 507 Systems Biology of Blood Vessels
- BIOE 518 Introduction to Computational Biology
- BIOE 548 Neural Signal Processing / Machine Learning for Neuro Engineering (Cross-list COMP 548)
- BIOE 589 Computational Molecular Bioengineering/Biophysics

**Chemical & Biomolecular Engineering**
- CHBE 682 Systems Biology of Human Diseases

**Computer Science**
- COMP 502 Neural Machine Learning I (Cross-list ELEC 502, STAT 502)
- COMP 503 Reasoning about Software
- COMP 504 Gr Object-Oriented Programming and Design
- COMP 505 Advanced Object-Oriented Programming and Design
- COMP 520 Distributed Systems (Cross-list ELEC 520)
- COMP 522 Multi-core Computing
- COMP 524 Mobile and Wireless Networking (Cross-list ELEC 524)
- COMP 527 Computer Systems Security
- COMP 530 Data Base Design and Implementation
- COMP 534 Introduction to Parallel Computing
- COMP 539 Software Engineering Methodology
- COMP 540 Statistical Machine Learning
- COMP 541 Introduction to Computer Security
- COMP 542 Large-Scale Machine Learning
- COMP 556 Introduction to Computer Networks
- COMP 557 Artificial Intelligence
- COMP 550 Algorithmic Robotics
- COMP 571 Bioinformatics: Sequence Analysis
- COMP 572 Bioinformatics: Network Analysis
- COMP 602 Neural Machine Learning II (Cross-list ELEC 602, STAT 602)

**Electrical and Computer Engineering**
- ELEC 502 Neural Machine Learning I (Cross-list COMP 502, STAT 502)
- ELEC 517 Architecting Modern Learning Algorithms
- ELEC 520 Distributed Systems (Cross-list COMP 520)
- ELEC 531 Statistical Signal Processing
- ELEC 548 Neural Signal Processing / Machine Learning for Neuro Engineering (Cross-list BIOE 548)
- ELEC 602 Neural Machine Learning II (Cross-list COMP 602, STAT 602)

**Statistics**
- STAT 502 Neural Machine Learning I (Cross-list COMP 502, ELEC 502)
- STAT 525 Bayesian Statistics (formerly STAT 622 Bayesian Data Analysis)
STAT 541 Multivariate Analysis
STAT 545 Generalized Linear Models (GLM) & Categorical Data Analysis
STAT 549 Functional Data Analysis
STAT 550 Nonparametric Function Estimation
STAT 552 Applied Stochastic Processes
STAT 553 Biostatistics
STAT 605 R for Data Science
STAT 606 SAS Statistical Programming
STAT 615 Regression and Linear Models
STAT 616 Advanced Statistical Methods
STAT 623 Probability in Bioinformatics and Genetics
STAT 640 Data Mining and Statistical Learning
STAT 648 Graphical Models and Networks
STAT 655 Nonparametric Bayesian Data Analysis
STAT 673 Probability and Statistics for Systems Biology

Baylor College of Medicine

See the link to the academic calendar here, class schedule here, and course descriptions here.

GS-311-401 Computational Math for Biomedical Scientists
GS-311-402 Computational Molecular Biophysics and Structural Biology
GS-311-405 Computer-Aided Discovery Methods
GS-310-459J Bioinformatics and Genome Analysis
GS-GE-402 Introduction to Data Mining
GS-GS-527 ABC: Applications to Biology of Computation
GS-GS-532 Biostatistics for Biomedical and Translational Researchers

University of Houston

Choose the graduate catalog at this link.

The University of Houston offers a wide range of courses of similar nature such as the ones listed under Rice University. In particular the Colleges of Natural Sciences and Mathematics, and the College of Pharmacy offer a variety of equivalent classes that can be considered.

In order to request that a course may be added as an approved elective, you must provide a syllabus and course description to the NLM program administrator.

The University of Texas Health Science Center at Houston - School of Biomedical Informatics (SBMI)

See this link for SBMI's course catalog; there is also a link on the left of that page, Current Students, under which you can find the current semester schedule.

HI 5004 Introduction to Clinical Healthcare
HI 5300 Introduction to Health Informatics
HI 5301 Information Systems in the Delivery of Healthcare
HI 5302 Cognitive Science in Health Informatics
HI 5303 Decision Making in Health Care
HI 5304 Advanced Database Concepts in Health Informatics
HI 5306 Health Information System Security
HI 5311 Foundations of Health Information Sciences II
HI 5313 Introduction to Electronic Health Records
HI 5314 Technology Assessment in Healthcare
HI 5315 Quality and Outcome Improvement in Healthcare
HI 5340 Introduction to Learning Environments in the Health Sciences
HI 5341 Learning Environment Development in the Health Sciences
HI 5350 Evaluation of Health Care Systems
HI 5351 Research Design and Evaluation in Health Informatics
HI 5353 Health Informatics Data Analysis
HI 5354 Cognitive Engineering in Health Informatics
HI 5360 Clinical Decision Support System
HI 6300 Advanced Health Information Systems
HI 6301 Health Data Display
HI 6302 Knowledge Modeling and Engineering in Health Informatics
HI 6303 Introduction to Telehealth
HI 6306 Information and Knowledge Representation in Health Informatics
HI 6309 Healthcare Interface Design
HI 6311 Advanced Decision Analysis
HI 6315 Advanced Electronic Health Records
HI 6322 Distributional Semantics: Methods and Biomedical Applications
HI 6323 Datamining in Biomedical Informatics
HI 6351 Triangulation Methods in Biomedical Informatics

Courses offered at UT Medical Branch at Galveston

UTMB’s Graduate School of Biomedical Sciences does not have an open course search; search under Degree Programs or GSBS Courses by Program and contact the individual coordinators for more information, e.g. contact Population Health Sciences (PHS) for bioinformatics-type courses.

Biochemistry and Molecular Biology
BMB 6209 Probabilistic and Statistical Methods in Bioinformatics
BMB 6216 Practical Algorithms for Bioinformatics and Systems Biology
BMB 6338 Computer Modeling of Macromolecular Structure And Function
BMB 6360 Thermodynamics of Macromolecular Assembly

Population Health Sciences (PHS)
PHS 6345 Introduction to Bioinformatics
PHS 6313 Longitudinal Data Analysis
PHS 6341 Categorical Data Analysis
PHS 6343 Statistical Methodology I
PHS 6344 Statistical Methodology II
PHS 6354 Linear Modeling

Updated 1/30/2018