NLM Training Program in Biomedical Informatics and Data Science: Approved electives

Rice University

See [this link](https://registrar.rice.edu/online_forms#VS) to the course catalog; the form and deadlines for inter-institutional course registration for non-Rice PhD students (See under Graduate Students); and the form for Visiting Auditor Registration for postdocs here (under Visiting Students): [https://registrar.rice.edu/online_forms#VS](https://registrar.rice.edu/online_forms#VS).

Rice does not post course schedules for the entire academic year, but rather posts the following semester’s course schedule towards the end of the prior semester (~in late March for Fall semester courses, late October for Spring courses). Therefore, look at past semesters/years to learn whether a course is offered in the Fall or Spring semester so you can plan your curriculum timeline. Course catalog (Note that not all courses in the catalog are currently offered.): [https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata). Course schedule: [https://courses.rice.edu/courses/ISWKSCAT.cat](https://courses.rice.edu/courses/ISWKSCAT.cat).

Academic calendar for deadlines and course dates: [https://registrar.rice.edu/calendars](https://registrar.rice.edu/calendars).

Bioengineering
- BIOE 548 Neural Signal Processing (Cross-list ELEC 548)
- BIOE 552 Intro to Computational Systems Biology: Modeling & Design Principles of Biochemical Networks
- BIOE 564 Bioinformatics: Network Analysis (Cross-list COMP 572)
- BIOE 589 Computational Molecular Bioengineering/Biophysics
- BIOE 591 Fundamentals of Medical Imaging I (Cross-list ELEC 585)
- BIOE 682 Systems Biology of Human Diseases (Cross-list CHBE 682)

Chemical & Biomolecular Engineering
- CHBE 682 Systems Biology of Human Diseases (Cross-list BIOE 682)

Computer Science
- COMP 502 Neural Machine Learning I (Cross-list ELEC 502, STAT 502)
- COMP 503 Reasoning about Software
- COMP 504 Graduate Object-Oriented Programming and Design
- COMP 505 Advanced Topics in Object-Oriented Design
- COMP 519 Genome-scale Algorithms
- 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 Database System Implementation
- COMP 534 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 550 Algorithmic Robotics (Cross-list ELEC 550)
- COMP 556 Introduction to Computer Networks (Cross-list ELEC 556)
- COMP 557 Artificial Intelligence (Cross-list ELEC 557)
- COMP 571 Bioinformatics: Sequence Analysis
- COMP 572 Bioinformatics: Network Analysis (Cross-list BIOE 564)
- COMP 576 Introduction to Deep Learning (Cross-list ELEC 576)
- COMP 602 Neural Machine Learning II (Cross-list ELEC 602, STAT 602)
- COMP 665 Visualization

Electrical and Computer Engineering
- ELEC 502 Neural Machine Learning I (Cross-list COMP 502, STAT 502)
- ELEC 520 Distributed Systems (Cross-list COMP 520)
- ELEC 524 Mobile and Wireless Networking (Cross-list COMP 524)
ELEC 531 Statistical Signal Processing
ELEC 546 Computer Vision
ELEC 548 Neural Signal Processing (Cross-list BIOE 548)
ELEC 550 Algorithmic Robotics (Cross-list COMP 550)
ELEC 556 Introduction to Computer Networks (Cross-list COMP 556)
ELEC 557 Artificial Intelligence (Cross-list COMP 557)
ELEC 559 Mobile Health
ELEC 573 Network Science and Analytics
ELEC 576 Introduction to Deep Learning (Cross-list COMP 576)
ELEC 577 Optimization for Data Science
ELEC 585 Fundamentals of Medical Imaging I (Cross-list BIOE 585)
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 581 Mathematical Probability I
STAT 602 Neural Machine Learning II (Cross-list COMP 602, ELEC 602)
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 648 Graphical Models and Networks

To request that a course may be added as an approved elective, please provide a syllabus and course description to
the NLM Training Program administrator Melissa at glueck@rice.edu.

Baylor College of Medicine
See links to the academic calendar and course schedule, and course descriptions under Graduate School Bulletin
here (see link on left side): https://www.bcm.edu/education/graduate-school-of-biomedical-sciences/curriculum.

GS-CP-6602 Computational Molecular Biophysics and Structural Biology (formerly GS-SB-402)
GS-GG-6301 Bioinformatics and Genome Analysis (formerly GS-GE-459)
GS-GS-6203 Data Mining (formerly Intro to Data Mining GS-GE-402)
GS-GS-6400 Foundations B: Biostatistics (formerly Biostatistics for Biomed. and Transl. Researchers GS-GS-532)
GS-NE-6201 Neural Systems
GS-QC-6201 Applications to Biology of Computation (formerly GS-GS-527)
GS-QC-6301 Practical Introduction to Programming for Scientists (formerly GS-SB-406)
GS-QC-6302 Computer-Aided Discovery Methods (formerly GS-SB-405)
GS-QC-6801 Computational Mathematics for Quantitative Biomedicine (formerly GS-SB-401)

To request that a course may be added as an approved elective, please provide a syllabus and course description to
the NLM Training Program administrator Melissa at glueck@rice.edu.

University of Houston

Graduate course catalog.
UH offers a wide range of equivalent classes to the ones listed under Rice University that can be considered,
particularly at the Colleges of Natural Sciences and Mathematics, and the College of Pharmacy.
BIOE 6301 Statistical Methods in BME
BIOE 6306 Advanced Artificial Neural Networks
BIOE 6342 Biomedical Signal Processing
BTEC 6304 Computational Methods in Biotechnology
COSC 6339 Big Data Analytics
COSC 6344 Visualization
COSC 6368 Artificial Intelligence
COSC 6370 Medical Imaging
COSC 6374 Parallel Computations
ECE 6356 Introduction to Machine Learning
ECE 6397 Parallel Algorithms for GPUs and Heterogeneous Systems

To request that a course may be added as an approved elective, please provide a syllabus and course description to the NLM Training Program administrator Melissa at glueck@rice.edu.

MD Anderson / UT Health Science Center at Houston - Graduate School of Biomedical Sciences

[Link to GSBS courses]

GS01-1033 Introduction to Biostatistics and Clinical Trials
GS01-1143 Introduction to Bioinformatics
GS02-1104 Introduction to Medical Physics II; Medical Imaging

To request that a course may be added as an approved elective, please provide a syllabus and course description to the NLM Training Program administrator Melissa at glueck@rice.edu.

UT Health Science Center at Houston – McWilliams School of Biomedical Informatics (SBMI)

[Link to SBMI courses]; see the link on the left side of that page for the current Semester Schedule.

To request that a course may be added as an approved elective, please provide a syllabus and course description to the NLM Training Program administrator Melissa at glueck@rice.edu.

BMI 5004 Introduction to Clinical Healthcare
BMI 5301 The U.S. Healthcare System
BMI 5302 Human Factors in Healthcare
BMI 5304 Advanced Database Concepts in Biomedical Informatics
BMI 5306 Security for Health Information Systems
BMI 5311 Foundations of Biomedical Information Sciences II
BMI 5313 Foundations of Electronic Health Records and Clinical Information Systems
BMI 5315 Quality and Outcome Improvement in Healthcare
BMI 5331 Foundations of Pharmacogenomics
BMI 5332 Statistical Analysis of Genomic Data
BMI 5351 Research Design and Evaluation in Biomedical Informatics
BMI 5353 Biomedical Data Analysis
BMI 5354 Cognitive Engineering in Biomedical Informatics
BMI 5360 Clinical Decision Support Systems
BMI 6300 Advanced Health Information Technology
BMI 6301 Health Data Display
BMI 6303 Introduction to Telehealth
BMI 6306 Information and Knowledge Representation in Biomedical Informatics
BMI 6309 Healthcare Interface Design
BMI 6311 Advanced Decision Analysis
BMI 6315 Advanced Electronic Health Records
BMI 6319 Data Analysis for Sci Research in BMI (formerly Advanced Data Structures in Biomedical Informatics)
BMI 6322  Distributional Semantics: Methods and Biomedical Applications
BMI 6323  Machine Learning in Biomedical Informatics
BMI 6330  Health Care Delivery in an EHR Enabled Environment: Biomedical NLP
BMI 6331  Medical Imaging and Signal Pattern Recognition
BMI 6334  Deep Learning in Biomedical Informatics

To request that a course may be added as an approved elective, please provide a syllabus and course description to the NLM Training Program administrator Melissa at glueck@rice.edu.

UT Medical Branch at Galveston

UTMB’s Graduate School of Biomedical Sciences does not have an open course search; search under GSBS Courses by Program, then under Degree Programs for contact information, e.g. contact Population Health Sciences (PHS) for bioinformatics-type courses. To request that a course may be added as an approved elective, please provide a syllabus and course description to the NLM Training Program administrator Melissa at glueck@rice.edu.

Biochemistry and Molecular Biology (BMB)

BMB 6216  Practical Algorithms for Bioinformatics and Systems Biology; offered in Spring semester
BMB 6240  Probabilistic and Statistical Methods in Bioinformatics; offered in Fall semester

Population Health Sciences (PHS)

PHS 6313  Longitudinal Data Analysis; offered in Summer semester
PHS 6341  Categorical Data Analysis; offered in Summer semester
PHS 6343  Biostatistics; offered in Fall semester
PHS 6344  Introduction to Linear Models; offered in Spring semester
PHS 6345  Introduction to Bioinformatics; offered in Fall semester
PHS 6354  Linear Models; offered in Fall semester

To request that a course may be added as an approved elective, please provide a syllabus and course description to the NLM Training Program administrator Melissa at glueck@rice.edu.

Updated 5/3/2024