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

Rice University

See this link 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.

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/!SWKSCAT.cat?p_action=cata. Course schedule: https://courses.rice.edu/courses/!SWKSCAT.cat.

Academic calendar for deadlines and course dates: 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 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: 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)

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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 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

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

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

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

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

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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)
https://gsbs.utmb.edu/course-descriptions/biochemistry-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)
https://www.utmb.edu/gsbs/course-descriptions/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

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