

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; and the form for Visiting Auditor Registration for postdocs here: 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 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 (Cross-list BIOC 589)
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)
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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)

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 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 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 [here](#).

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-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
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

[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

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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 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 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 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 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-\(bmb\)](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-\(phs\)](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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