NLM Training Program in Biomedical Informatics and Data Science
Approved Electives

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 only publishes the following semester's courses during the prior semester (not a year ahead), so 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 541 Introduction to Computer Security
COMP 539 Software Engineering Methodology
COMP 534 Introduction to Parallel Computing
COMP 556 Introduction to Computer Networks
COMP 557 Artificial Intelligence
COMP 550 Algorithmic Robotics
COMP 502 Neural Machine Learning I (Cross-list ELEC 502, STAT 502)
COMP 520 Distributed Systems (Cross-list ELEC 520)
COMP 524 Mobile and Wireless Networking (Cross-list ELEC 524)
COMP 527 Computer Systems Security
COMP 540 Statistical Machine Learning
COMP 571 Bioinformatics: Sequence Analysis
COMP 572 Bioinformatics: Network Analysis
COMP 573 Professional Development for Biomedical Informatics Professionals - instructor permission is required; course is taught in the Spring of even years.
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](#).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tr>
<td>GS-311-401</td>
<td>Computational Math for Biomedical Scientists</td>
</tr>
<tr>
<td>GS-311-402</td>
<td>Computational Molecular Biophysics and Structural Biology</td>
</tr>
<tr>
<td>GS-311-405</td>
<td>Computer-Aided Discovery Methods</td>
</tr>
<tr>
<td>GS-310-459J</td>
<td>Bioinformatics and Genome Analysis</td>
</tr>
<tr>
<td>GS-GE-402</td>
<td>Introduction to Data Mining</td>
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<tr>
<td>GS-GS-527</td>
<td>ABC: Applications to Biology of Computation</td>
</tr>
<tr>
<td>GS-GS-532</td>
<td>Biostatistics for Biomedical and Translational Researchers</td>
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</tbody>
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**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.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>HI 5004</td>
<td>Introduction to Clinical Healthcare</td>
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<tr>
<td>HI 5300</td>
<td>Introduction to Health Informatics</td>
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<tr>
<td>HI 5301</td>
<td>Information Systems in the Delivery of Healthcare</td>
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<tr>
<td>HI 5302</td>
<td>Cognitive Science in Health Informatics</td>
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<tr>
<td>HI 5303</td>
<td>Decision Making in Health Care</td>
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<tr>
<td>HI 5304</td>
<td>Advanced Database Concepts in Health Informatics</td>
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<tr>
<td>HI 5306</td>
<td>Health Information System Security</td>
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<tr>
<td>HI 5310</td>
<td>Foundations of Health Information Sciences I</td>
</tr>
<tr>
<td>HI 5311</td>
<td>Foundations of Health Information Sciences II</td>
</tr>
<tr>
<td>HI 5313</td>
<td>Introduction to Electronic Health Records</td>
</tr>
<tr>
<td>HI 5314</td>
<td>Technology Assessment in Healthcare</td>
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</table>
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