School of Natural Sciences and Mathematics

Molecular Biology and Healthcare Management (Double Major) (BS)

Bachelor of Science in Molecular Biology and Healthcare Management (Double Major)

Degree Requirements (152-153 semester credit hours)\[1\] \[2\]

JSOM Faculty


**Associate Professors:** Mehmet Ayvaci, Nina Baranchuk, Norris Bruce, Jianqing Chen, Zhonglan Dai, Rebecca Files, Dorothée Honhon, Bin Hu, Kyle Hyndman, Surya N. Janakiraman, Robert L. Kieschnick Jr., Atanu Lahiri, Jun Li, Ningzhong Li, Lívia Markóczy, Amit Mehra, Toyah Miller, Ramachandran (Ram) Natarajan, Naim Bugra Ozel, H. Dennis Park, Cuili Qian, Orlando C. Richard, Young U. Ryu, Gil Sadka, Harpreet Singh, David J. Springate, Upender Subramanian, Kelsey D. Wei, Han (Victor) Xia, Jun Xia, Ying Xie, Yexiao Xu, Alejandro Zentner, Jieying Zhang, Yuan Zhang, Feng Zhao, Yibin Zhou

**Assistant Professors:** Khai Chiong, Emily Choi, Andrew Frazelle, Ying Huang, Joonhwi Joo, Sora Jun, Sheen Levine, Meng Li, Maria Loumioti, Jean-Marie Meier, Radha Mookerjee, Anyan Qi, Alejandro Rivera Mesias, Alessio Saretto, Simon Siegenthaler, Serdar Simsek, Shaojie Tang, Xiaoxiao Tang, Shervin Tehrani, Ashwin Venkataraman, Christian Von-Drathen, Guihua Wang, Shouqiang Wang, Junfeng Wu, Steven Xiao, Yingjie Zhang, Zhe (James) Zhang, Xiaofei Zhao

**Professors Emeriti:** Dale Osborne, John J. Wiorkowski

**Assistant Professors Emeriti:** J. Richard Harrison, Jane Salk

**Clinical Professors:** John Barden, Britt Berrett, Abhijit Biswas, Ranavir Bose, Shawn Carraher, Larry Chasteen, David Cordell, Howard Dover, John Gamino, Randall S. Guttery, Charles Hazzard, William Hefley, Marilyn Kaplan, Sonia Leach, Peter Lewin, Jeffrey Manzi, Diane S. McNulty, Divakar Rajamani, Daniel Rajaratnam, Kannan Ramanathan, David Ritchey, Rajiv Shah, Mark Thouin, Jeff Weekley, Habte Woldu, Fang Wu, Laurie L. Ziegler

Clinical Associate Professors: Shawn Alborz, Dawn Owens, Avanti P. Sethi, Ramesh Subramoniam, Aysegl Toptal, McClain Watson, David Widdifield, dxp153830. carolyn

Clinical Assistant Professors: Athena Alimirzaei, Moran Blueshtein, Judd Bradbury, Sourav Chatterjee, Jerome Gafford, Ayfer Gurun, Maria Hasenhuttl, Julie Haworth, Jeffery (Jeff) Hicks, Revansiddha Khanapure, Kristen Lawson, Kathryon Lookadoo, Liping Ma, Sarah Moore, Ravi Narayan, Parneet Pahwa, Jason Parker, Drew Peabody, Nassim Sohaee

Assistant Professor of Instruction: Rasoul Ramezani


NSM Faculty

Professors: Rockford K. Draper, Juan E. González, Lawrence J. Reitzer, Stephen Spiro, Li Zhang, Michael Qiwei Zhang

Associate Professors: John G. Burr, Jeff L. DeJong, Heng Du, Tae Hoon Kim, Kelli Palmer, Duane D. Winkler, Zhenyu Xuan

Assistant Professors: Zachary Campbell, Nicole De Nisco, Nikki Delk, Jyoti Misra, Faruck Morcos

Professors Emeritus: Hans Bremer, Lee A. Bulla, Donald M. Gray

Associate Professors Emeritus: Gail A. M. Breen, Dennis L. Miller

Clinical Professor: David Murchison

Research Assistant Professors: Lan Guo, Li Liu

Assistant Professors of Instruction: Caitlin Braitsch, Ida Klang, Eva Sadat, Zhuoru Wu

Senior Lecturers: Mehmet Candas, Wen-Ju Lin, Meenakshi Maitra, Robert C. Marsh, Iti Mehta, Jing Pan, Elizabeth Pickett, Ruben D. Ramirez, Scott A. Rippel, Ilya Sapozhnikov, Subha Sarcar, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

I. Core Curriculum Requirements: 42 semester credit hours

Communication: 6 semester credit hours

Select any 6 semester credit hours from Communication Core courses (see advisor)

Mathematics: 3 semester credit hours

Math 2417 Calculus 1, 5, 6

or **MATH 2413** Differential Calculus\(^4, 5, 6\)

**Life and Physical Sciences: 6 semester credit hours**

- **CHEM 1311** General Chemistry \(^4\)
- or **CHEM 1315** Honors Freshman Chemistry \(^4\)
- **CHEM 1312** General Chemistry II\(^4\)
- or **CHEM 1316** Honors Freshman Chemistry II\(^4\)

**Language, Philosophy and Culture: 3 semester credit hours**

Select any 3 semester credit hours from **Language, Philosophy and Culture Core** courses (see advisor)

**Creative Arts: 3 semester credit hours**

Select any 3 semester credit hours from **Creative Arts Core** courses (see advisor)

**American History: 6 semester credit hours**

Select any 6 semester credit hours from **American History Core** courses (see advisor)

**Government/Political Science: 6 semester credit hours**

- **GOVT 2305** American National Government
- **GOVT 2306** State and Local Government

**Social and Behavioral Sciences: 3 semester credit hours**

Choose one of the following\(^7\)

- **BA 1310** Making Choices in Free Market Systems\(^8, 4\)
- **BA 1320** Business in a Global World\(^8, 4\)
- **ECON 2301** Principles of Macroeconomics\(^8, 4\)
- **ECON 2302** Principles of Microeconomics\(^8, 4\)

**Component Area Option: 6 semester credit hours**

Choose two of the following\(^7\)

- **MATH 2419** Calculus II\(^4, 5, 9\)
  - or **MATH 2414** Integral Calculus\(^4, 5, 9\)
- **BA 1310** Making Choices in Free Market Systems\(^8, 4\)
- **BA 1320** Business in a Global World\(^8, 4\)
- **ECON 2301** Principles of Macroeconomics\(^8, 4\)

II. Major Requirements: 89-90 semester credit hours

**Biology Major Preparatory Courses: 20-21 semester credit hours beyond Core Curriculum**

**CHEM 1111** General Chemistry Laboratory I

or **CHEM 1115** Honors Freshman Chemistry Laboratory I

**CHEM 1112** General Chemistry Laboratory II

or **CHEM 1116** Honors Freshman Chemistry Laboratory II

**CHEM 1311** General Chemistry 4

or **CHEM 1315** Honors Freshman Chemistry 4

**CHEM 1312** General Chemistry II 4

or **CHEM 1316** Honors Freshman Chemistry II 4

**CHEM 2123** Introductory Organic Chemistry Laboratory I 8

**CHEM 2125** Introductory Organic Chemistry Laboratory II 8

**CHEM 2323** Introductory Organic Chemistry I 8

**CHEM 2325** Introductory Organic Chemistry II 8

**MATH 2417** Calculus 4, 5, 6

or **MATH 2413** Differential Calculus 4, 5, 6

**MATH 2419** Calculus II 4, 5, 9

or **MATH 2414** Integral Calculus 4, 5, 9

**PHYS 2325** Mechanics 4 and **PHYS 2125** Physics Laboratory I

or **PHYS 2421** Honors Physics I - Mechanics and Heat 4, 10

**PHYS 2326** Electromagnetism and Waves 4

or **PHYS 2422** Honors Physics II - Electromagnetism and Waves 4

**PHYS 2126** Physics Laboratory II

**Biology Core Courses: 33 semester credit hours**

**BIOL 2111** Introduction to Modern Biology Workshop I 8

**BIOL 2112** Introduction to Modern Biology Workshop II 8

**BIOL 2281** Introductory Biology Laboratory 8

**BIOL 2311** Introduction to Modern Biology 8
BIOL 2312 Introduction to Modern Biology II
BIOL 3101 Classical and Molecular Genetics Workshop
BIOL 3102 Eukaryotic Molecular and Cell Biology Workshop
BIOL 3161 Biochemistry Workshop I
BIOL 3162 Biochemistry Workshop II
BIOL 3301 Classical and Molecular Genetics
BIOL 3302 Eukaryotic Molecular and Cell Biology
BIOL 3361 Biochemistry I
BIOL 3362 Biochemistry II
or BIOL 3335 Microbial Physiology
BIOL 3380 Biochemistry Laboratory
BIOL 4461 Biophysical Chemistry

Business Major Preparatory Courses: 12 semester credit hours beyond Core Curriculum

ACCT 2301 Introductory Financial Accounting
ACCT 2302 Introductory Management Accounting
BLAW 2301 Business and Public Law
OPRE 3360 Managerial Methods in Decision Making Under Uncertainty
or STAT 2332 Introductory Statistics for Life Sciences
or STAT 3360 Probability and Statistics for Management and Economics
Choose two of the following:
BA 1310 Making Choices in Free Market Systems
or ECON 2302 Principles of Microeconomics
BA 1320 Business in a Global World
or ECON 2301 Principles of Macroeconomics

Business Core Courses: 24 semester credit hours

BCOM 1300 Introduction to Professionalism and Communication in Business
or BCOM 3300 Professionalism and Communication in Business
BCOM 4300 Managing Communications in Business
IMS 3310 International Business
FIN 3320 Business Finance
III. Elective Requirements: 21 semester credit hours

A zero semester credit hour practicum experience is required:

**HMGT 4090** Healthcare Management Internship

A zero semester credit hour community engagement experience is required:

**BA 4095** Social Sector Engagement and Community Outreach Practicum

**Healthcare Management Core Courses: 18 semester credit hours**

**HMGT 3301** Introduction to Healthcare Management

**HMGT 3310** Healthcare Regulatory Environment

**HMGT 3311** Healthcare Accounting

**HMGT 3320** Complex and Dynamic Healthcare Environment

**HMGT 4321** Introduction to Healthcare Information Systems

**HMGT 4395** Capstone Senior Project - Healthcare Management

or **BPS 4395** Capstone Senior Project - Business

or **ENTP 4395** Capstone Senior Project - Entrepreneurship

**Biology (3 semester credit hours):**

**BIOL 4380** Cell and Molecular Biology Laboratory

or **BIOL 3V96** Undergraduate Research in Molecular and Cell Biology

or **BIOL 4391** Senior Research in Molecular and Cell Biology

or **BIOL 4399** Senior Honors Research for Thesis in Molecular and Cell Biology

All students must complete at least 51 semester credit hours of upper-division courses to graduate.

1. Incoming freshmen must enroll and complete requirements of UNIV 1010 and the corresponding school-related freshman seminar course. Students, including transfer students, who complete their core curriculum at UT Dallas must take UNIV 2020.

2. Degree is 153-154 semester credit hours if students are required to take NATS 1101.
3. Curriculum Requirements can be fulfilled by other approved courses from institutions of higher education. The courses listed are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at UT Dallas.

4. A required Major course that also fulfills a Core Curriculum requirement. Semester credit hours are counted in Core Curriculum.

5. Six semester credit hours of Calculus are counted under Mathematics Core and Component Area Option Core, and 2 semester credit hours of Calculus are counted as Biology Major Preparatory Courses.

6. Students may elect to substitute MATH 2417 for MATH 2413.

7. Certain courses listed are prerequisites for major core (e.g., BA 1310 or BA 1320 or ECON 2301 for IMS 3310), major concentration, or major related courses. Choose accordingly.

8. Indicates a prerequisite class to be completed before enrolling for upper-division classes.

9. Students may elect to substitute MATH 2419 for MATH 2414.

10. Students who complete PHYS 2421 do not need to complete PHYS 2125.

11. JSOM freshmen are required to take BCOM 1300. Transfer students and students new to JSOM are required to take BCOM 3300.

12. Requires permission of the Biology Undergraduate Advisor to ensure training in recombinant DNA analysis.

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