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 (154 semester credit hours)\(^1\)\(^2\)

NSM Faculty

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

**Professor Emeritus:** Hans Bremer, Donald M. Gray

**Clinical Professor:** David Murchison

**Associate Professors:** Gail A. M. Breen, John G. Burr, Jeff L. DeJong, Ernest M. Hannig, Tae Hoon Kim, Dennis L. Miller, Zhenyu Xuan

**Assistant Professors:** Zachary Campbell, Nikki Delk, Heng Du, Jung-whan (Jay) Kim, Faruck Morcos, Kelli Palmer, Duane D. Winkler, Hyuntae Yoo

**Research Assistant Professors:** Monique Duncan, Lan Guo, Li Liu

**Senior Lecturers:** Irina Borovkov, Mehmet Candás, Brenna Hill, Wen-Ju Lin, Robert C. Marsh, Jing Pan, Elizabeth Pickett, Ruben D. Ramirez, Scott A. Rippel, Ilya Sapožnikov, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

JSOM Faculty


**Professor Emeritus:** Dale Osborne

**Clinical Professors:** John Barden, Britt Berrett, Abhijit Biswas, Pamela Foster Brady, Shawn Carraher, Paul Convery, David Cordell, Tevfik Dalgic, Michael Deegan, Kutsal Dogan, Howard Dover, Greg Durham,

**Associate Professors:** Nina Baranchuk, Norris Bruce, Jianqing Chen, Zhonglan Dai, Rebecca Files, Xianjun Geng, J. Richard Harrison, Ernan E. Haruvy, Surya N. Janakiraman, Robert L. Kieschnick Jr., Seung-Hyun Lee, Ningzhong Li, Livia Markóczy, Amit Mehra, Toyah Miller, Alp Muharremoglu, Ramachandran (Ram) Natarajan, Valery Polkovnichenko, Ashutosh Prasad, Orlando C. Richard, Young U. Ryu, Gil Sadka, Jane Salk, Harpreet Singh, David J. Springate, Upender Subramanian, Kelsey D. Wei, Han (Victor) Xia, Jun Xia, Ying Xie, Yexiao Xu, Alejandro Zentner, Jiaying Zhang, Yuan Zhang, Feng Zhao, Zhiqiang (Eric) Zheng, Yibin Zhou

**Clinical Associate Professors:** Shawn Alborz, Larry Chasteen, Sonia Leach, Kannan Ramanathan, Carolyn Reichert, Avanti P. Sethi, Kelly Slaughter, James Szot, Mark Thouin, McClain Watson

**Assistant Professors:** Mehmet Ayvaci, Emily Choi, Bernhard Ganglmair, Dorothée Honhon, Kyle Hyndman, Atanu Lahiri, Sheen Levine, Bin Li, Jun Li, Meng Li, Xiaolin Li, Naim Bugra Ozel, Arzu Ozoguz, Anyan Qi, Alejandro Rivera Mesias, Alessio Saretto, Serdar Simsek, Gonca P. Soysal, Shaojie Tang, Christian Von-Drathen, Malcolm Wardlaw, Steven Xiao, Shengqi Ye, Nir Yehuda, Zhe (James) Zhang, Xiaofei Zhao

**Clinical Assistant Professors:** Athena Alimirzaei, Moran Blueshtein, Judd Bradbury, John Gamino, Ayfer Gurun, Maria Hasenhuttl, Julie Haworth, Jeffery (Jeff) Hicks, Kristen Lawson, Vance Lewis, Liping Ma, Ravi Narayan, Dawn Owens, Parneet Pahwa, Anastasia V. Shcherbakova, Jeanne Sluder, Nassim Sohaee

**Visiting Assistant Professor:** Lale Guler

**Senior Lecturers:** Arthur M. Agulnek, Semiramis Amirpour, Frank Anderson, Anindita Bardhan, Tiffany A. Bortz, Richard Bowen, Monica E. Brussolo, George DeCourcy, Eugene (Gene) Deluke, Alexander Edsel, Amal El-Ashmawi, Carol Flannery, Mary Beth Goodrich, Thomas (Tom) Henderson, Jennifer G. Johnson, Jackie Kimzey, Chris Linsteadt, Michele Lockhart, Joseph Mauriello, Victoria D. McCrady, Edward Meda, Prithi Narasimhan, Madison Pedigo, Matt Polze, James Richards, Debra Richardson, Margaret Smallwood, Steven Solcher, Luell (Lou) Thompson, Amy L. Troutman, Jeremy Vickers, Robert Wright, Kathy Zolton, Hubert Zydorek

### I. Core Curriculum Requirements: 42 semester credit hours

**Communication:** 6 semester credit hours

- **COMM 1311** Survey of Oral and Technology-based Communication
- **RHET 1302** Rhetoric

**Mathematics:** 3 semester credit hours

- **MATH 2417** Calculus

**Life and Physical Sciences:** 6 semester credit hours
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II

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
ECON 2301 Principles of Macroeconomics

Component Area Option: 6 semester credit hours
MATH 2419 Calculus II
ECON 2302 Principles of Microeconomics

II. Major Requirements: 97 semester credit hours

Biology Major Preparatory Courses: 20 semester credit hours beyond Core Curriculum
CHEM 1111 General Chemistry Laboratory I
CHEM 1112 General Chemistry Laboratory II
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II
CHEM 2123 Introductory Organic Chemistry Laboratory I
CHEM 2125 Introductory Organic Chemistry Laboratory II
CHEM 2323 Introductory Organic Chemistry I
CHEM 2325 Introductory Organic Chemistry II
MATH 2417 Calculus I
MATH 2419  Calculus II

PHYS 2325  Mechanics

PHYS 2125  Physics Laboratory I

PHYS 2326  Electromagnetism and Waves

PHYS 2126  Physics Laboratory II

Biology Core Courses: 33 semester credit hours

BIOL 2111  Introduction to Modern Biology Workshop I

BIOL 2112  Introduction to Modern Biology Workshop II

BIOL 2281  Introductory Biology Laboratory

BIOL 2311  Introduction to Modern Biology I

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: 15 semester credit hours beyond Core Curriculum

ACCT 2301  Introductory Financial Accounting

ACCT 2302  Introductory Management Accounting

BLAW 2301  Business and Public Law

ECON 2301  Principles of Macroeconomics

ECON 2302  Principles of Microeconomics

OPRE 3333  Quantitative Business Analysis

or MATH 2333  Matrices, Vectors, and Their Application
Managerial Methods in Decision Making Under Uncertainty
or Introductory Statistics for Life Sciences
or Probability and Statistics for Management and Economics

Business Core Courses: 29 semester credit hours

Business Basics and Professional Development
Introduction to Business Professional Development and Business Communication

Business Communication
Advanced Business Communication
Strategic Management
Business Finance
International Business
Information Technology for Business
Operations Management
Organizational Behavior
Principles of Marketing

III. Elective Requirements: 15 semester credit hours

A zero semester credit hour practicum experience is required.

Healthcare Management Internship

The following courses fulfill the remaining Guided Elective semester credit hours:

Healthcare Management Core Courses: 12 semester credit hours

Introduction to Healthcare Management
Healthcare Accounting
Introduction to Healthcare Information Systems
Healthcare Regulatory Environment

Biology (3 semester credit hours):

Cell and Molecular Biology Laboratory
Undergraduate Research in Molecular and Cell Biology
Senior Research in Molecular and Cell Biology
Senior Honors Research 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 155 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. Indicates a prerequisite class to be completed before enrolling for upper-division classes.

7. Students may substitute MATH 2418 or CS 2305.

8. JSOM freshmen are required to take BA 1100 and HMGT 3100. Transfer students and students new to JSOM are required to take HMGT 3200.

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

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