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 (153 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

**Professors Emeritus:** Hans Bremer, Donald M. Gray, Claud S. Rupert

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

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

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

**Senior Lecturers:** Irina Borovkov, Mehmet Candas, Vincent P. Cirillo, Brenna Hill, Wen-Ju Lin, Robert C. Marsh, David Murchison, Jing Pan, Elizabeth Pickett, Ruben D. Ramírez, Scott A. Rippel, Elizabeth L. Rugg, Ilya Sapozhnikov, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

**Affiliated Faculty:** Stephen D. Levene, Jonathan E. Ploski

JSOM Faculty


**Professor Emeritus:** Dale Osborne

**Clinical Professors:** John Barden, Britt Berrett, Abhijit Biswas, Shawn Carraher, Larry Chasteen, David Cordell, Tevfik Dalgic, Howard Dover, Greg Durham, Forney Fleming III, Randall S. Guttery, Charles
Hazzard, Marilyn Kaplan, Peter Lewin, Dennis McCuistion, Radha Mookerjee, Joseph Picken, Divakar Rajamani, Kannan Ramanathan, Arthur Selender, Rajiv Shah, Kenneth Smith, Habte Woldu, Fang Wu, Laurie L. Ziegler

**Associate Professors:** Nina Baranchuk, Norris Bruce, Huseyin Cavusoglu, Jianqing Chen, Zhonglan Dai, Xianjun Geng, Umit G. Gurun, J. Richard Harrison, Surya N. Janakiraman, Robert L. Kieschnick Jr., Nanda Kumar, Seung-Hyun Lee, Livia Markóczy, Syam Menon, Toyah Miller, Alp Muharremoglu, Ramachandran (Ram) Natarajan, Valery Polkovnichenko, Ashutosh Prasad, Orlando C. Richard, Young U. Ryu, Gil Sadka, Jane Salk, David J. Springate, Kelsey D. Wei, Jun Xia, Ying Xie, Yexiao Xu, Alejandro Zentner, Yuan Zhang, Feng Zhao, Zhiqiang (Eric) Zheng, Yibin Zhou

**Clinical Associate Professors:** Sonia Leach, Carolyn Reichert, Kelly Slaughter, Mark Thouin, John McClain Watson

**Assistant Professors:** Mehmet Ayvaci, Emily Choi, Rebecca Files, Bernhard Ganglmair, Dorothée Honhon, Elisabeth Honka, Kyle Hyndman, Atanu Lahiri, Sheen Levine, Bin Li, Jun Li, Meng Li, Ningzhong Li, Virginie Lopez-Kidwell, Arzu Ozoguz, Anyan Qi, Alessio Saretto, Harpreet Singh, Gonca P. Soysal, Upender Subramanian, Shaqjie Tang, Christian Von-Drathen, Malcolm Wardlaw, Han (Victor) Xia, Shengqi Ye, Nir Yehuda, Jieying Zhang, Xiaofei Zhao

**Clinical Assistant Professors:** Hans-Joachim Adler, Shawn Alborz, Athena Alimirzaei, Moran Bluestein, John Gamino, Ayfer Gurun, Vance Lewis, Liping Ma, Dawn Owens, Anastasia V. Shcherbakova

**Senior Lecturers:** Arthur M. Agulnek, Semiramis Amirpour, Frank Anderson, Anindita Bardhan, Ronald Blair, Daniel Bochsler, Tiffany A. Bortz, Richard Bowen, Judd Bradbury, Monica E. Brussolo, George DeCourcy, Eugene (Gene) Deluke, Alexander Edsel, Amal El-Ashmawi, Carol Flannery, Mary Beth Goodrich, Maria Hasenhuettl, Julie Haworth, Thomas (Tom) Henderson, Jennifer G. Johnson, Lynn Carl Jones, Jackie Kimzey, Kristen Lawson, Chris Linsteadt, Diane S. McNulty, Madison Pedigo, Jared Pickens, Matt Polze, James Richards, Mark Salamasick, Avanti P. Sethi, Jeanne Sluder, Steven Solcher, Luell (Lou) Thompson, Amy L. Troutman, Robert Wright, Kathy Zolton

**Visiting Faculty:** Kyle Edgington

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 I

**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: 96 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
NATS 1101 Natural Sciences and Mathematics Freshman Seminar or BA 1100 Business Basics
UNIV 1010 Freshman Seminar

**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: 16 semester credit hours beyond Core Curriculum**

ACCT 2301 Introductory Financial Accounting
ACCT 2302 Introductory Management Accounting
HMGT 3100 Professional Development
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\(^\text{6,7}\)

**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

**Business Core Courses: 27 semester credit hours**

**BCOM 3310** Business Communication

**BCOM 4350** Advanced Business Communication

**FIN 3320** Business Finance

**ITSS 3300** Information Technology for Business

**OPRE 3310** Operations Management

**OBHR 3310** Organizational Behavior

**MKT 3300** Principles of Marketing

**BPS 4305** Strategic Management

**IMS 3310** International Business

**III. Elective Requirements: 15 semester credit hours**

**Healthcare Management Core Courses: 12 semester credit hours**

**HMGT 3301** Introduction to Healthcare Management

**HMGT 3311** Healthcare Accounting

**HMGT 4321** Introduction to Healthcare Information Systems

**HMGT 3310** Healthcare Regulatory Environment

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

**BIOL 4380** Cell and Molecular Biology Laboratory\(^8\)

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

**BIOL 4391** Senior Research in Molecular and Cell Biology: Advanced Writing

**BIOL 4399** Senior Honors Research in Molecular and Cell Biology: Thesis/Advanced Writing

Each student is expected to complete a minimum of 160 hours of business-related work to fulfill the JSOM professional practicum requirement.

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 154 semester credit hours if students are required to take BA 1100 or 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. Requires permission of the Biology Undergraduate Advisor to ensure training in recombinant DNA analysis.

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