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)

**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 Candas, 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


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, Lívia Markóczy, Amit Mehra, Toyah Miller, Alp Muharremoglu, Ramachandran (Ram) Natarajan, Valery Polkovnichenko, Ashutosh Prasad, Orlando C. Richard, Young U. Ryu, Gil Sadka, Jane Sark, 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, 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, Dorothee Honhon, Kyle Hyndman, Atanu Lahir, 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, Jeffrey (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


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\(^4\),\(^5\)

Life and Physical Sciences: 6 semester credit hours
  CHEM 1311  General Chemistry I\(^4\)
  CHEM 1312  General 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
  ECON 2301  Principles of Macroeconomics\(^4\),\(^6\)

Component Area Option: 6 semester credit hours
  MATH 2419  Calculus II\(^4\),\(^5\)
  ECON 2302  Principles of Microeconomics\(^4\),\(^6\)

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\(^4\)
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 6
ACCT 2302 Introductory Management Accounting 6
BLAW 2301 Business and Public Law 6
ECON 2301 Principles of Macroeconomics 4, 6
ECON 2302 Principles of Microeconomics 4, 6
OPRE 3333 Quantitative Business Analysis 6
  or MATH 2333 Matrices, Vectors, and Their Application 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: 29 semester credit hours

BA 1100 Business Basics and HMG 3100 Professional Development 8
  or HMG 3200 Introduction to Business Professional Development and Business Communication 8
BCOM 3310 Business Communication
BCOM 4350 Advanced Business Communication
BPS 4305 Strategic Management
FIN 3320 Business Finance
IMS 3310 International Business
ITSS 3300 Information Technology for Business
OPRE 3310 Operations Management
OBHR 3310 Organizational Behavior
MKT 3300 Principles of Marketing

III. Elective Requirements: 15 semester credit hours

A zero semester credit hour practicum experience is required.

HMG 4090 Healthcare Management Internship

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

Healthcare Management Core Courses: 12 semester credit hours

HMG 3301 Introduction to Healthcare Management
HMG 3311  Healthcare Accounting
HMG 4321  Introduction to Healthcare Information Systems
HMG 3310  Healthcare Regulatory Environment

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 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 HMG 3100. Transfer students and students new to JSOM are required to take HMG 3200.
9. Requires permission of the Biology Undergraduate Advisor to ensure training in recombinant DNA analysis.

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