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)

JSOM Faculty


**Associate Professors:** Mehmet Ayvaci, Nina Baranchuk, Norris Bruce, Jianqing Chen, Zhonglan Dai, Rebecca Files, Dorothee Honhon, Bin Hu, Kyle Hyndman, Surya N. Janakiraman, Robert L. Kieschnick Jr., Atanu Lahiri, Jun Li, Ningzhong Li, Livia 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-Draten, Guihua Wang, Shouqiang Wang, Junfeng Wu, Steven Xiao, Yingjie Zhang, Zhe (James) Zhang, Xiaofei Zhao

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

**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, Aysegul 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, Kathryn Lookadoo, Liping Ma, Sarah Moore, Ravi Narayan, Parneet Pahwa, Jason Parker, Drew Peabody, Nassim Sohaee

**Assistant Professor of Instruction:** Rasoul Ramezani

**Senior Lecturers:** Khatereh Ahadi, Semiramis Amirpour, Frank Anderson, Tiffany A. Bortz, Richard Bowen, Monica E. Brussolo, Juliann Chapman, George DeCourcy, Alexander Edsel, Amal El-Ashmawi, Negin Enayaty Ahangar, Mary Beth Goodrich, Thomas (Tom) Henderson, Abu Naser Islam, Scott Janke, Jennifer G. Johnson, Jackie Kimzey, Chris Linsteadt, Joseph Mauriello, Victoria D. McCrady, Edward Meda, Robert (Stephen) Molina, Prithi Narasimhan, Mohammad Naseri Taheri, Madison Pedigo, Matt Polze, Debra Richardson, Gaurav Shekhar, Margaret Smallwood, Steven Solcher, Timothy Stephens, Luell (Lou) Thompson, Guido Tirone, Robert Wright, Kathy Zolton, Hubert Zydorek

**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 I\(^{4,5,6}\)

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

Life and Physical Sciences: 6 semester credit hours

CHEM 1311 General Chemistry I\(^{4}\)

or CHEM 1315 Honors Freshman Chemistry I\(^{4}\)

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: \(^{2}\)

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: \(^{2}\)

MATH 2419 Calculus II\(^{4,5,9}\)

or MATH 2414 Integral Calculus\(^{4,5,2}\)

BA 1310 Making Choices in Free Market Systems\(^{8,4}\)

BA 1320 Business in a Global World\(^{8,4}\)
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 I¹
or CHEM 1315 Honors Freshman Chemistry I¹
CHEM 1312 General Chemistry II¹
or CHEM 1316 Honors Freshman Chemistry II¹
CHEM 2123 Introductory Organic Chemistry Laboratory I⁸
CHEM 2125 Introductory Organic Chemistry Laboratory II⁸
CHEM 2323 Introductory Organic Chemistry I⁸
CHEM 2325 Introductory Organic Chemistry II⁸
MATH 2417 Calculus I⁴, ⁵, ⁶
or MATH 2413 Differential Calculus⁴, ⁵, ⁶
MATH 2419 Calculus II⁴, ⁵, ²
or MATH 2414 Integral Calculus⁴, ⁵, ²
PHYS 2325 Mechanics⁴ and PHYS 2125 Physics Laboratory I
or PHYS 2421 Honors Physics I - Mechanics and Heat⁴, ¹⁰
PHYS 2326 Electromagnetism and Waves⁴
or PHYS 2422 Honors Physics II - Electromagnetism and Waves⁴
PHYS 2126 Physics Laboratory II

Biology Core Courses: 33 semester credit hours

BIOL 2111 Introduction to Modern Biology Workshop I⁸
BIOL 2112 Introduction to Modern Biology Workshop II⁸
BIOL 2281 Introductory Biology Laboratory⁸
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: 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
OPRE 3310  Operations Management
ITSS 3300  Information Technology for Business
OBHR 3330  Introduction to Human Resource Management
    or OBHR 3310  Organizational Behavior
MKT 3300  Principles of Marketing

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 Laboratory12
    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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