School of Natural Sciences and Mathematics

Biology and Healthcare Management (Double Major) (BS)

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

Degree Requirements (147-149 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

**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, Kelli Palmer, Zhenyu Xuan

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

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

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

JSOM Faculty


**Professor Emeritus:** Dale Osborne

**Clinical Professors:** John Barden, Britt Berrett, Abhijit Biswas, Ranavir Bose, Pamela Foster Brady, Shawn Carraher, Larry Chasteen, Paul Convery, David Cordell, Kutsal Dogan, Howard Dover, Forney Fleming III, John Gamino, Randall S. Guttery, Charles Hazzard, William Hefley, Robert Hicks, Gerald (Jerry) Hoag, Marilyn Kaplan, Ching-Chung Kuo, Sonia Leach, Peter Lewin, Jeffrey Manzi, John F. McCracken, Dennis McCuistion, Diane S. McNulty, Joseph Picken, Divakar Rajamani, Daniel Rajaratnam, David Ritchey, Rajiv Shah, Mark Thouin, Keith Thurgood, Jeff Weekley, Habte Woldu, Fang Wu, Laurie L. Ziegler

**Associate Professors:** Nina Baranchuk, Norris Bruce, Jianqing Chen, Zhonglan Dai, Rebecca Files, Xianjun Geng, J. Richard Harrison, Dorothée Honhon, 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, Valery Polkovnichenko, Cuili Qian, Orlando C. Richard, Young U.
Clinical Associate Professors: Steven Guengerich, Lale Guler, David Parks, Carolyn Reichert, Avanti P. Sethi, Kelly Slaughter, Jeanne Sluder, James Szot, McClain Watson Assistant Professors: Mehmet Ayvaci, Qi (George) Chen, Khai Chiong, Emily Choi, Bernhard Ganglmair, Nathan Goldman, Ying Huang, Sora Jun, Sheen Levine, Meng Li, Xiaolin Li, Maria Loumioti, Jean-Marie Meier, Radha Mookerjee, Anyan Qi, Alejando Rivera Mesias, Alessio Saretto, Simon Siegenthaler, Serdar Simsek, Shaojie Tang, Christian Von-Drathen, Shouqiang Wang, Malcolm Wardlaw, Junfeng Wu, Steven Xiao, Shengqi Ye, Nir Yehuda, Zhe (James) Zhang, Xiaofei Zhao

Clinical Assistant Professors: Shawn Alborz, Athena Alimirzaei, Christina (Krysta) Betanzos, Moran Blueshtein, Judd Bradbury, Jerome Gafford, Ayfer Gurun, Maria Hasenhuttl, Julie Haworth, Jeffery (Jeff) Hicks, Revansiddha Khanapure, Kristen Lawson, Kathryn Lookadoo, Liping Ma, Sarah Moore, Ravi Narayan, Dawn Owens, Parneet Pahwa, Jason Parker, Drew Peabody, Nassim Sohaee

Senior Lecturers: Semiramis Amirpour, Frank Anderson, Vivek Arora, Tiffany A. Bortz, Richard Bowen, Monica E. Brussolo, Juliann Chapman, George DeCourcey, Eugene (Gene) Deluke, Alexander Edsel, Amal El-Ashmawi, Carol Flannery, Mary Beth Goodrich, Thomas (Tom) Henderson, Jennifer G. Johnson, Jackie Kimzey, Chris Linseilde, Joseph Mauriello, Victoria D. McCrady, Edward Meda, Robert (Stephen) Molina, Prithi Narasimhan, Mohammed Naseri Taheri, Madison Pedigo, Matt Polze, James Richards, Debra Richardson, Anindita Roy Bardhan, Kashif Saeed, Margaret Smallwood, Steven Solcher, Luell (Lou) Thompson, Amy L. Troutman, 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 2413 Differential Calculus

Life and Physical Sciences: 6 semester credit hours

CHEM 1311 General Chemistry I
or CHEM 1315 Honors Freshman Chemistry I
CHEM 1312 General Chemistry II
or CHEM 1316 Honors Freshman 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
Choose one course from the following:
BA 1320 Business is a Global World
ECON 2301 Principles of Macroeconomics
ECON 2302 Principles of Microeconomics

Component Area Option: 6 semester credit hours
Choose two courses from the following:
MATH 2414 Integral Calculus
BA 1320 Business is a Global World
ECON 2301 Principles of Macroeconomics
ECON 2302 Principles of Microeconomics

II. Major Requirements: 87-89 semester credit hours

Biology Major Preparatory Courses: 20-22 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 Honor Freshman Chemistry Laboratory II
CHEM 1311 General Chemistry
or CHEM 1315 Honors Freshman Chemistry
CHEM 1312 General Chemistry II
or CHEM 1316 Honors Freshman 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 2413  Differential Calculus
MATH 2414  Integral Calculus
PHYS 2325  Mechanics and PHYS 2125  Physics Laboratory I
  or PHYS 2421  Honors Physics I - Mechanics and Heat and PHYS 2125  Physics Laboratory I
  or PHYS 1301  College Physics I and PHYS 2125  Physics Laboratory I
PHYS 2326  Electromagnetism and Waves and PHYS 2126  Physics Laboratory II
  or PHYS 2422  Honor Physics II - Electromagnetism and Waves
  or PHYS 1302  College Physics II and PHYS 2126  Physics Laboratory II

**Biology Core Courses: 29 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

**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
BA 1310 Principles of Business Decision Making
    or ECON 2301 Principles of Macroeconomics
BA 1320 Business is a Global World
    or ECON 2302 Principles of Microeconomics
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: 26 semester credit hours
BA 1100 Business Basics and HMGТ 3100 Professional Development
    or HMGТ 3200 Introduction to Business and Professional Development
BCOM 3310 Business Communication
BCOM 4350 Advanced Business Communication
FIN 3320 Business Finance
IMS 3310 International Business
ITSS 3300 Information Technology for Business
OPRE 3310 Operations Management
OBHR 3330 Introduction to Human Resource Management
    or OBHR 3310 Organizational Behavior
MKT 3300 Principles of Marketing

III. Elective Requirements: 18 semester credit hours

Guided Electives: 18 semester credit hours
A zero semester credit hour practicum experience is required.
    HMGТ 4090 Healthcare Management Internship
A zero semester credit hour community engagement experience is required.
    BA 4095 Social Sector Engagement and Community Outreach Practicum
The following courses fulfill a portion of the remaining Guided Elective semester credit hours:

Healthcare Management Core Courses: 15 semester credit hours
    HMGТ 3301 Introduction to Healthcare Management
    HMGТ 3311 Healthcare Accounting
HMGT 4321 Introduction to Healthcare Information Systems
HMGT 3310 Healthcare Regulatory Environment
HMGT 4380 Capstone in Healthcare Management

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 148-150 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. Indicates a prerequisite class to be completed before enrolling for upper-division classes.
5. A required Major course that also fulfills a Core Curriculum requirement. Semester credit hours are counted in Core Curriculum.
6. 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.
7. Students may substitute MATH 2413 and MATH 2414 by taking MATH 2417 and MATH 2419.
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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