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** (150 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

**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, 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 Sapoizhnkov, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

**JSOM Faculty**

Professor Emeritus: Dale Osborne


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 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, 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, jdb101000.jpg140630

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 2413 Differential Calculus\textsuperscript{4, 5, 6}

Life and Physical Sciences: 6 semester credit hours

CHEM 1311 General Chemistry I\textsuperscript{4}

CHEM 1312 General Chemistry II\textsuperscript{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\textsuperscript{4, 7}

Component Area Option: 6 semester credit hours

MATH 2414 Integral Calculus\textsuperscript{4, 5, 6}

ECON 2302 Principles of Microeconomics\textsuperscript{4, 7}

II. Major Requirements: 93 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\textsuperscript{4}

CHEM 1312 General Chemistry II 4
CHEM 2123 Introductory Organic Chemistry Laboratory I 7
CHEM 2125 Introductory Organic Chemistry Laboratory II 7
CHEM 2323 Introductory Organic Chemistry I 7
CHEM 2325 Introductory Organic Chemistry II 7
MATH 2413 Differential Calculus 4, 5, 6
MATH 2414 Integral Calculus 4, 5, 6
PHYS 2325 Mechanics 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 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 7
BIOL 2112 Introduction to Modern Biology Workshop II 7
BIOL 2281 Introductory Biology Laboratory 7
BIOL 2311 Introduction to Modern Biology I 7
BIOL 2312 Introduction to Modern Biology II 7
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: 15 semester credit hours beyond Core Curriculum

ACCT 2301 Introductory Financial Accounting 7
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
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  HMGT 3100  Professional Development
  or  HMGT 3200  Introduction to Business Professional Development and Business Communication

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

Guided Electives: 15 semester credit hours

A zero semester credit hour practicum experience is required.

HMGT 4090  Healthcare Management Internship

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

Healthcare Management Core Courses: 12 semester credit hours
Biology (3 semester credit hours):

- **BIOL 4380** Cell and Molecular Biology Laboratory\(^{10}\)
  - 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.

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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 151 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 substitute MATH 2413 and MATH 2414 by taking MATH 2417 and MATH 2419.

7. Indicates a prerequisite class to be completed before enrolling for upper-division classes.

8. Students may substitute MATH 2418 or CS 2305.

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

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