THE UNIVERSITY OF TEXAS
HEALTH SCIENCE CENTER AT HOUSTON

SCHOOL OF BIOMEDICAL INFORMATICS

2014-2016 CATALOG ADDENDUM

SCHOOL OF BIOMEDICAL INFORMATICS 2014-2016 ADDENDUM BOOKLET
INDEX OF CHANGES

I. Alternative Instruction Delivery Fee for Web Courses

I. Alternative Instruction Delivery Fee for Web Courses

CURRENT: (PAGE 15, under Fees and Charges)

The UT Board of Regent's approved the request of SBMI to transition from charging out-of-state students a flat fee of $750/semester credit for Alternative Instruction for Web Courses to charging currently approved non-resident tuition rates. This eliminates the alternative instruction delivery fee for web courses to non-resident students.

CURRENT TEXT:

Alternative Instruction Delivery Fee for Web Courses

per hour delivered within Texas	$100/semester credit
per hour delivered outside of Texas	$750/semester credit

CHANGE TO:

Alternative Instruction Delivery Fee for Web Courses

per hour delivered	$100/semester credit

THE UNIVERSITY OF TEXAS
SCHOOL OF BIOMEDICAL INFORMATICS AT HOUSTON

2014-2016 CATALOG

The University of Texas Health Science Center at Houston is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award certificate, baccalaureate, master's, doctorate and special professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of The University of Texas Health Science Center at Houston.

This catalog is a general information publication only. It is not intended to nor does it contain all regulations that relate to students. Applicants, students, and faculty are referred to The University of Texas Health Science Center at Houston General Catalog. The provisions of this catalog and/or the General Catalog do not constitute a contract, express or implied, between any applicant, student or faculty member and The University of Texas School of Biomedical Informatics at Houston or The University of Texas System. The University of Texas School of Biomedical Informatics at Houston reserves the right to withdraw courses at any time, to change fees or tuition, calendar, curriculum, degree requirements, graduation procedures, and any other requirements affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled.

School of Biomedical Informatics Table of Contents

The School of Biomedical Informatics at Houston
2015-2017 Catalog

Message from the Dean

The School of Biomedical Informatics at Houston (SBMI), an academic component of The University of Texas Health Science Center at Houston (UTHealth) is the only academic program of biomedical informatics in the State of Texas and the only free-standing school of biomedical informatics in the nation. The mission of SBMI is to educate and train future scientists and professionals in biomedical informatics and health information technology, to conduct informatics research to improve healthcare and advance biomedical discovery, and to develop and use advanced informatics tools to solve practical problems in healthcare. The health informatics field has many job openings and continues to expand with careers ranging from electronic health record implementation to information governance to data analytics and more. The average salary for SBMI alumni is $88,000, with 20% making more than $150,000.

The School's vision is to become a biomedical informatics innovator serving Texas, leading the nation, and impacting the world. The varied and talented faculty represent expertise both in the theory and practice of informatics applied to biomedical science and health care, and the pursuit of cutting edge research with a focus on translational informatics moving research from the lab to the bedside, to the community, and to the market. Students find the School's performance-based, highly interdisciplinary, team-oriented education and research programs stimulating, challenging and career enhancing.

Both the Master's and Doctoral degree programs are offered in the unique environment of the Texas Medical Center, the most concentrated area of biomedical and healthcare expertise, knowledge and skills in the world. There are outstanding opportunities for students to be involved in informatics applied to health care and biomedical research in the many UTHealth clinical and research components and the more than fifty other healthcare related entities in the surrounding Texas Medical Center. Students interact with highly qualified and experienced faculty active in research and developing solutions for a wide array of biomedical informatics problems. Through research consortia and centers, such as the National Center for Cognitive Informatics and Decision-Making in Healthcare, Gulf Coast Regional Extension Center for Health IT, Gulf Coast Consortia for Quantitative Biomedical Sciences, Center for Computational Biomedicine, Center for Clinical and Translational Sciences, the Institute for Molecular Medicine for the Prevention of Human Diseases, and NASA/Johnson Space Center, students will interact with the best and brightest on the frontiers of human experience. As a Master's degree student, the student will learn to apply the most advanced understanding of biomedical informatics and health information technology to improve biomedical discovery and the delivery of healthcare. Doctoral students will work with leading researchers in a broad array of biomedical informatics areas to create new knowledge, advance the discipline, and open up new areas such as translational informatics and big health data analytics for future generations.

Students and faculty in our programs come from numerous health professions, basic sciences, biomedical sciences, computer science, engineering, biomedical engineering, healthcare management, cognitive science, and social sciences. The "transdisciplinary" nature of the School's educational and research programs makes them unique and rewarding, and results in breakthrough discoveries. School faculty and students are involved in making groundbreaking contributions to healthcare delivery and biomedical discovery. This includes inventing and

evaluating new ways to capture, store, integrate, access, display, utilize, and evaluate healthcare and biomedical data, information, and knowledge. SBMI is exploring the relationships between genomics and clinical practice, developing big health data analytics for healthcare quality and safety, developing futuristic functions and modules for electronic health records systems, discovering new functions of existing drugs and monitoring and detecting adverse events of new drugs through data mining of electronic health records and medical literature, using health data to improve healthcare management, developing mobile platforms to deliver health information to remote areas, inventing new methods and tools of social interaction to promote health prevention and public health, and. SBMI is also innovative in the use of educational research and technology, revolutionizing how to design and implement online educational and learning environments for both biomedical scientists and healthcare professionals.

If this is the kind of challenge and learning environment you are looking for, then join us and become part of the informatics leaders of tomorrow. Help us invent the future of health care and biomedical discovery.

Jiajie Zhang, PhD
Dean

Academic Calendar
2015-2016

FALL SEMESTER 2014

New Student Orientation	July 15 through August 22, 2014
Classes Begin	August 25, 2014
Classes End	December 12, 2014
Final Examinations	December 15-19, 2014

SPRING SEMESTER 2015

New Student Orientation	November 17, 2014 through January 9, 2015
Classes Begin	January 12, 2015
Spring Break	March 9-13, 2015
Classes End	May 8, 2014
Final Examinations	May 11-15, 2015

SUMMER SESSION 2015 (12-WEEK SESSION)

New Student Orientation	March 16 – May 22, 2015
Classes Begin	May 26, 2015
Classes End	August 17, 2015
Final Examinations	August 18 - 19, 2015

Academic Calendar
2016-2017

FALL SEMESTER 2015

New Student Orientation	July 16 through August 23, 2015
Classes Begin	August 24, 2015
Classes End	December 11, 2015
Final Examinations	December 14-18, 2015

SPRING SEMESTER 2016

New Student Orientation	December 1, 2015 – January 10, 2016
Classes Begin	January 11, 2016
Spring Break	March 7-11, 2016
Classes End	April 29, 2016
Final Examinations	May 2-6, 2016

SUMMER SESSION 2016 (12-WEEK SESSION)

New Student Orientation	April 25 – May 22, 2016
Classes Begin	May 23, 2016
Classes End	August 12, 2016
Final Examinations	August 15-16, 2016

Note: At the discretion of the Dean, the attendance of certain individuals may be required on a scheduled university holiday and on other than the usual scheduled class dates because of practicum/preceptorship requirements. Holidays will be announced in the class schedule each semester/session.

Administration

Jiajie Zhang, PhD
Doris L. Ross Professor and Dean

Ryan Bien, MHA
Associate Dean for Management

Susan H. Fenton, PhD, RHIA, FAHIMA
Associate Professor of Health Informatics and Associate Dean for Academic Affairs

Jaime Hargrave
Director of Student Affairs

Faculty

Elmer V. Bernstam, MD, MSE, MS
Professor and Associate Dean for Research

Juliana J. Brixey, PhD, MPH, RN
Associate Professor of Health Informatics

Trevor Cohen, MBChB, PhD
Associate Professor

Amy Franklin, PhD
Assistant Professor

Lex Frieden, MA, LLD (hon.)
Professor of Health Informatics

Yang Gong, MD, PhD
Associate Professor

Jonathan Ishee, MPH, MS, LLM, JD
Assistant Professor of Health Informatics

M. Sriram Iyengar, PhD
Associate Professor

Craig W. Johnson, PhD
Associate Professor

Todd Johnson, PhD
Professor

Peter Killoran, MD, MS
Assistant Professor of Health Informatics

James Langabeer, PhD, MBA, FHIMSS
Professor

Sahiti Myneni, PhD, MSE
Assistant Professor

Dean F. Sittig, PhD
Professor

Kimberly Smith, PhD
Assistant Professor of Health Informatics

Jingchun Sun, PhD
Assistant Professor of Health Informatics

Cui Tao, PhD
Assistant Professor

Robert W. Vogler, PhD, MEd
Associate Professor of Health Informatics

Hua Xu, PhD
Associate Professor

W. Jim Zheng, PhD
Associate Professor

Min Zhu, MD, PhD, MS
Assistant Professor of Health Informatics

Adjunct Faculty

Alemayehu Abebe, PhD
Adjunct Assistant Professor

Allan Abedor, PhD
Adjunct Professor Emeritus

Jonas Almeida, PhD
Adjunct Professor

J. Robert Beck, MD
Adjunct Professor

Suresh Bhavnani, PhD
Adjunct Associate Professor

Eric Boerwinkle, PhD
Adjunct Professor

Jeffrey Chang, PhD
Adjunct Assistant Professor

Jung-Wei Chen, DDS., MS, PhD
Adjunct Assistant Professor

Wah Chiu, PhD
Adjunct Professor

Zhigang Deng, PhD
Adjunct Associate Professor

Kim Dunn, MD, PhD
Adjunct Associate Professor

Mary Edgerton, MD, PhD
Adjunct Associate Professor

Oliver Esch, MD
Adjunct Associate Professor

Adol Esquivel, MD, PhD
Adjunct Assistant Professor

Jorge A. Ferrer, MD, MBA
Adjunct Assistant Professor

Kevin M. Fickenscher, PhD
Adjunct Professor

Jose Florez-Arango, MD, PhD
Adjunct Assistant Professor

Yuriy Fofanov, PhD
Adjunct Associate Professor

John Frenzel, MD, MS
Adjunct Professor

Tsuguya Fukui, MD, MPH, PhD
Adjunct Professor

David Gorenstein, PhD
Adjunct Professor

James Griffiths, MD
Adjunct Assistant Professor

Chiehwen Hsu, PhD
Adjunct Associate Professor
Robert Hunter, MD, PhD
Adjunct Professor

John C. Joe, MD, MPH
Adjunct Assistant Professor

Constance M. Johnson, PhD
Adjunct Assistant Professor

Ioannis Kakadiaris, PhD
Adjunct Professor

Brent King, MD
Adjunct Professor

Helen Li, MD
Adjunct Associate Professor

Yin Liu, PhD
Assistant Professor

Rodger Marion, PhD
Adjunct Professor

Allison McCoy, PhD
Adjunct Assistant Professor

Patrick McGinnis, MD, MS
Adjunct Assistant Professor

Sharon McLane, PhD, MBA, RN, BC
Adjunct Assistant Professor

Qun Meng, PhD
Adjunct Professor

Aleksander Milosavljeic, PhD
Adjunct Associate Professor

Parsa Mirhaji, MD, PhD
Adjunct Assistant Professor

Kevin Montgomery, PhD
Adjunct Associate Professor

Robert E. Murphy, MD
Adjunct Associate Professor

Koichi Nobutomo, MD, PhD
Adjunct Professor

Sachiko Ohta, MD, MS, PhD
Adjunct Associate Professor

Paula N. O'Neill, EdD
Adjunct Professor

Velma Payne, PhD, MBA
Adjunct Instructor

Jagannatha Rao, MD, PhD
Adjunct Assistant Professor

John Riggs, MD, MS
Adjunct Associate Professor

Doris L. Ross, PhD
Dean Emerita

Mano Selvan, PhD
Adjunct Assistant Professor

Michael Shabot, MD
Adjunct Professor

Ross Shegog, PhD
Assistant Professor

Hardeep Singh, BS, MD
Adjunct Associate Professor

Anwar Sirajuddin, MS
Adjunct Instructor

Elizabeth Souther, RN, PhD
Adjunct Assistant Professor

Ignacio H. Valdes, MD, MS
Adjunct Assistant Professor

Muhammad Walji, PhD
Associate Professor

William Weems, PhD
Associate Professor

Olivier Wenker, MD
Adjunct Professor

Irmgard Willcockson, PhD
Adjunct Assistant Professor

Steven Wong, PhD
Adjunct Professor

Kevin C. Wooten, PhD
Adjunct Associate Professor

Shuxing Zhang, PhD
Adjunct Assistant Professor

Jing Wang, PhD, MPH, MSN, RN
Adjunct Assistant Professor

Mission of the University of Texas School of Biomedical Informatics at Houston

The mission of The University of Texas School of Biomedical Informatics (SBMI) is to educate future scientists and professionals in biomedical informatics and health information technology, conduct informatics research to improve health care and advance biomedical discovery and develop advanced informatics tools to solve problems in health care.

SBMI's mission is consistent with UTHealth's mission:

As a comprehensive health science university, the mission of The University of Texas Health Science Center at Houston is to educate health science professionals, discover and translate advances in the biomedical and social sciences, and model the best practices in clinical care and public health.

We pursue this mission in order to advance the quality of human life by enhancing the diagnosis, treatment, and prevention of disease and injury, as well as promoting individual health and community well-being.

The University of Texas School of Biomedical Informatics at Houston

The University of Texas School of Biomedical Informatics at Houston (SBMI), formerly known as the School of Health Information Sciences (SHIS), was founded in 1972 as the School of Allied Health Sciences. The school is the newest of the six UTHealth schools. UTHealth is located in the world-renowned Texas Medical Center (TMC), one of the largest medical centers in the world.

In 1992, UTHealth determined it would focus on graduate education in the health sciences. At that time, the school began to shift from traditional allied health baccalaureate programs toward the development of graduate programs to join the other professional and graduate schools in the university. In 1997, the school created the Department of Health Informatics and began to offer a Master of Science in health informatics. In 2001, the school name was changed to the School of Health Information Sciences (SHIS), which also subsumed all faculty and students in the department. The school offered a Master of Science in health informatics, a Doctor of Philosophy in health informatics and a certificate program in Health Informatics for non-degree seeking students. In 2010, the school underwent another name change. SHIS became the School of Biomedical Informatics. SBMI currently offers certificate programs in health informatics, a Master of Science in Health Informatics with two tracks: a traditional research track and an applied health informatics track, a Doctor of Philosophy in Health Informatics and dual-degree programs with the School of Public Health.

The School is located in the University Center Tower, 7000 Fannin Street, Suite 650, Houston, Texas 77030
https://sbmi.uth.edu

Application Information

Applications to the programs in the School of Biomedical Informatics may be submitted online at https://apply.uth.tmc.edu

Additional information is available by contacting the Office of the Registrar at:
The University of Texas Health Science Center at Houston (UTHealth)
Office of the Registrar
7000 Fannin, Suite 2250
Houston, TX 77030
Telephone: (713) 500-3388
Email address: registrar@uth.tmc.edu

Specific requirements for admission to the certificate and degree programs are provided in the program section of this catalog. Subject to approval of the Dean, each program's faculty is responsible for selecting applicants for admission.

An International Student is a student who is not a citizen or a permanent resident of the U.S. All international students must contact and must be cleared by the UTHealth Office of International Affairs prior to registration. An international applicant seeking admission to SBMI must submit the following:

- TOEFL/ILETS (Test of English as a Foreign Language) score. The scores for the TOEFL test must be submitted directly to the UTHealth Office of the Registrar from the TOEFL test centers using institutional codes 6906 or 6907. The minimum acceptable score is a 95 on the internet-based test. The scores for the ILETS Academic test must be submitted directly to the UTHealth Office of the Registrar from the ILETS test centers. The minimum acceptable score is a 7.

- International applicants who have received a diploma from a university at which English is the language of instruction are not required to submit an English Language exam. If this school is outside of an English-speaking country, evidence that indicates the language of instruction will need to be provided with your application such as a letter from the University on official letterhead. Testing is at the applicant's expense.

- International applicants must submit official transcripts and a professional course-by-course evaluation of all transcripts from all universities attended outside the United States. The application forms for such an evaluation may be obtained online from the service providers; Educational Credential Evaluators, Inc., http://www.ece.org and World Education Services, www.wes.org. The results of the evaluation must be submitted directly to the UTHealth Office of the Registrar by the agency. The evaluation report is at the applicant's expense.

- The I-20 form, required by the Department of Homeland Security (DHS) and the United States Citizenship and Immigration Services (USCIS), is prepared by UTHealth and issued to qualified non-immigrant applicants who have been admitted and who have demonstrated financial ability to support their education. Upon acceptance, the non-immigrant student will be asked to provide financial and visa information so that the I-20 form may be completed. The student must submit the completed form to the American Embassy in his/her country of origin in order to receive a student visa or must otherwise be eligible for F-1 status in the U.S. You can find additional information on the Please contact the UTHealth Office of International Affairs for information.

- Official transcripts of all previous academic credit must be submitted to the Office of the Registrar. Courses with grades of "C" or lower are not transferable for equivalency credit.

Waiver or alteration of any course or credit-hour requirements, other than those mandated by statute, for admission to the School or of courses offered by the School, must be based upon a review of the circumstances, a justification and review by the faculty, and final written approval by the Dean. Requirements mandated by statute will not be waived or altered.

In order to register, a student must have on file in the Office of the Registrar official transcripts and documents of all previous academic work, and meet all admission requirements. A student who knowingly falsifies or is a party to the falsification of any official University record (including transcripts and/or application for admission) will be subject to the offer of admission being withdrawn, or disciplinary action, which may include dismissal from the University.

Enrollment Status

Students who matriculate in the School of Biomedical Informatics fall into one of the following categories.

- Program Student: a student admitted to an academic program who is following a set curriculum and pursuing a degree without an interruption of more than two semesters in enrollment.

- Full-time Student: a graduate student enrolled in at least nine semester credit hours (SCH) each during the fall and spring semester, or six semester credit hours in the 12-week summer session. Only those credit hours for UTHealth courses taken for credit are counted in the calculation of credits designating a full-time student.

- Part-time Student: a graduate student enrolled in a program for fewer than nine semester credit hours in the fall or spring semester, or fewer than six semester credit hours in the 12-week summer session.

- Certificate student: a student admitted to the certificate program seeking a certificate of completion of fifteen semester credit hours.

- Non-degree Student: a student who is admitted to the School for one or more courses but not admitted to a degree or certificate program. Enrollment as a non-degree student does not entitle a student to admission to a program. A non-degree student is not eligible to receive a degree. Non-degree students will not be allowed to register for practicum/doctoral courses. Non-degree students can complete a maximum of 12 semester credit hours and must maintain a 3.0/4.0 grade point average.

- Transfer Student: a student who has graduate level credits from another institution and who applies for admission to a degree program at the School. This student must be in good standing at the institution last attended.

- 4 + 1 student: a student who is presently enrolled in a bachelors level academic program but has been admitted to SBMI to complete a graduate certificate at the same time as completing the undergraduate degree.

- Concurrent/Inter-institutional Student: Concurrent and inter-institutional students can complete a maximum of 12 semester credit hours and must maintain a 3.0/4.0 grade point average.

- Any student enrolled at UTHealth who is not admitted to a degree program or certificate program in the School of Biomedical Informatics can complete a maximum of 12 semester credit hours and must maintain a 3.0/4.0 grade point average. If a student takes more than 12 semester credit hours, only 12 semester credit hours can be counted toward any degree in the School of Biomedical Informatics.

Student Enrollment

Students enroll each semester by using myUTH on the web at https://my.uth.tmc.edu/psp/myuth/. There is no on-site enrollment. Enrollment dates are announced in the online Registration Schedule: http://www.uth.edu/registrar/current-students/registration/registration-schedule.htm

Certificate and General Admission Process

Certificate Admission Process

Completed applications are reviewed by the Certificate Program Coordinator(s). Recommendations for or against admission are made to the Associate Dean for Academic Affairs. The Certificate Program Coordinator(s) advise all certificate students.

General Admission Process for Degree Programs

The School admissions committee reviews completed applications to the master's and doctoral programs.

The admission criteria include, but are not limited to:

- Prior academic preparation (depth, breadth, and performance): application, college transcripts, and letters of recommendation;
- Relevant work experience (particularly practice in the field of study): application, goal statement, curriculum vitae (CV) or resume, and letters of recommendation;
- Career goals: application, goal statement, and letters of recommendation;
- Motivation: goal statement, letters of recommendation, and college transcripts;
- Integrity: goal statement, and letters of recommendation;
- Standardized tests: scores on GRE or MAT and TOEFL (if required);
- Thesis, publications and other scholarly works: supplemental documents provided by applicant;
- Success in overcoming social, economic or educational disadvantages.

Qualified applicants will be invited to interview with faculty members at the discretion of the committee. The Office of Academic Affairs will schedule personal interviews. In addition to the listed criteria, the applicant's communication skills and understanding of the program may be evaluated based on the personal interview. Admissions decisions will be made after interviews are completed. Completed applications to the certificate and masters programs with all supporting documentation must be received July 15 for fall admission, March 15 for summer admissions, and November 15 for spring admissions. Completed applications to the PhD program with all supporting documentation must be received March 15 for fall admissions, July 15 for spring admissions and November 15 for summer admissions to the PhD program.

Certificate of Health Informatics Application Deadlines

Fall admissions	July 15
Spring admissions	November 15
Summer admissions	March 15

4+1 Certificate of Health Informatics Application Deadlines

Fall admissions	July 15
Summer admissions	March 15

Master of Science in Health Informatics Application Deadlines

Fall admissions	July 15
Spring admissions	November 15
Summer admissions	March 15

Doctor of Philosophy in Health Informatics Application Deadlines

Fall admissions	March 15
Spring admissions	July 15
Summer admissions	November 15

Address application inquiries and personal interview inquiries to:

Office of Academic Affairs
UTHealth School of Biomedical Informatics at Houston
7000 Fannin, Suite 650
Houston, TX 77030
(713) 500-3591
SBMIAcademics@uth.tmc.edu

Financial Information

Optional and Mandatory Fees

Certain mandatory and optional fees should be anticipated at the School. Mandatory fees are required of all students. Optional fees are not required, but the student may elect to subscribe to any of the services listed under optional fees. All fees are subject to change without notice.

Mandatory Fees

Application Fee

Any prospective student submitting an application to the school for consideration must also submit a non-refundable $60 application fee. This fee is assessed to cover the cost of processing the application.

Tuition

Beginning Fall 2014, Texas resident tuition is $231 per semester credit hour. Non-resident tuition is $708 per semester credit hour.

A resident doctoral student who has a total of 100 or more semester credit hours of doctoral work at an institution of higher education is required to pay nonresident doctoral tuition rates. For more information contact the Office of the Registrar.

A student whose hours may no longer be submitted for formula funding because it is the same or substantially similar to a course that the student previously attempted for two or more times at The University of Texas Health Science Center at Houston will be charged a higher tuition rate of $708 per semester credit hour or nonresident tuition rates.

Fees and Charges

- Application Fee (non-refundable) $60
- Graduation Fee (see below) $75
- Installment Use Fee $20
- Late Payment Fee $25
- Late Registration Fee $25
- Returned Check Fee $25
- Credit Card Service Use Fee 2.5%
- Student Record Fee $5/semester
- Student Liability Insurance Fee (fall semester) $14.50
- Student Liability Insurance Fee (spring semester) $9
- Student Health Insurance Fee (annual rate) $1,859
- Student ID Replacement Fee $10/card
- Laboratory Fee (see below) $30

- Student Services Fee (see below)

• Information Technology Access Fee	$33/semester
• Computer Resource Fee	$100/semester
• Technology Fee	$100/fall & spring semesters
• Alternative Instruction Delivery Fee for Web Courses	
per hour delivered within Texas	$100/semester credit
per hour delivered outside of Texas	$750/semester credit

Graduation Fee

A graduation fee of $75, payable at registration for the student's final academic term, is required of all degree-seeking students. This fee covers expenses associated with graduation but does not cover rental of the cap and gown. This fee is charged whether or not the student participates in graduation. Certificate students do not pay the graduation fee.

Laboratory Fees

Laboratory fees are assessed in an amount to cover the cost of laboratory materials and supplies used by the student.

Student Services Fee

The Student Services Fee is a mandatory fee assessed per semester credit hour to all students. The annual fee is $512.00 with a maximum charge of $196.98 per fall and spring semester and $115.50 for the summer semester. The fee provides funding towards student governance activities, Student Health Services, Student Counseling, shuttle service, and recreational facilities. Optional family coverage for most student services is available. The schedule of fees is as follows:

FULL-TIME STUDENT RATES (REQUIRED) $512.00 ANNUALLY				
Service	**Fall/Spring**	**Summer**	**9-Month**	**12-Month**
Recreation	$77.65	$51.70	$155.30	$207.00
Health	$73.25	$33.20	$146.50	$179.70
Shuttle	$27.50	$18.26	$55.00	$73.26
Counseling	$12.93	$8.64	$25.85	$34.49
Government	$5.65	$3.70	$11.30	$15.00
TOTAL	**$196.98**	**$115.50**	**$393.95**	**$509.45**

Technology Fee

A Technology Fee will be assessed to all students at $100 every fall and spring semester to cover the expenses associated with the software, hardware, programming, maintenance fees and technical support used by students. The fee will support SBMI's goal in achieving to be the best publicly supported biomedical informatics school in the US by conducting the highest quality programs in education, biomedical informatics applications and research. The fee will also allow SBMI in using the most current technology to train students and help attract the best and brightest students to our quality graduate programs.

Student Records Fee

The Student Records Fee provides students with unlimited transcripts and enrollment verification documents. The charge is $15.00 per academic year ($5 per semester).

Optional Fees

- Audit Fee: For a fee of $25 per course, a student may elect to audit a course, i.e., attend the course without receiving academic credit at other UTHealth schools. SBMI does not allow auditing of classes.
- Transportation Expenses: Students are required to provide their own transportation to practicum sites.
- Academic Regalia Rental: The charge for rental of the cap and gown is approximately $45. Information on ordering academic regalia is sent to students several months before annual commencement exercises. Additional information for graduates can be found here: https://sbmi.uth.edu/current-students/graduation/

Professional Liability Insurance

Every student enrolled in the School of Biomedical Informatics must have professional liability insurance coverage in force throughout each semester enrolled in the minimum policy amount of $100,000 per claim. The professional liability insurance must include coverage for breach of confidentiality of protected health information in electronic or other patient records. Advance written notice or posting may change the minimum amount required by the Office of the Dean. The premium for this insurance is due at the time of initial registration and each fall and spring semester. The annual premium is prorated based on the student's date of entry. The annual premium is approximately $23.50 per year.

Competitive Academic Scholarship Awards

Competitive Academic Scholarship awards are designed to facilitate the scholastic development of students who are in high academic standing. The benefits of this award are two-fold; (1) a direct financial award, and (2) if the recipient is not a resident of Texas, the change in status to resident tuition for that academic school year (September through August). All SBMI degree-seeking students are eligible to compete for these scholarships. The number of Competitive Academic Scholarships awarded each year is dependent on the availability of funds.

The criteria for selection are:

- Grade point average documented by the Director of Student Affairs
- Pattern of academic achievement
- Recommendation of the Student Advising Committee
- Success in overcoming socioeconomic or educational disadvantages

The SBMI Student Scholarships Committee considers all submissions. The SBMI Student Scholarships Committee is composed of UTHealth faculty and student representation. The recommendations of the SBMI Student Scholarships Committee are submitted through the Associate Dean for Academic Affairs for submission to the Dean. Notification of awards will be made by email.

Summary of Estimated Annual Fees and Expenses Based on Full-time enrollment

Program Expenses

Application Fee (one-time only)	$60
Immunization (approximate cost, one time only)	$175
Student Criminal Background Check	$44
Tuition (based on 24 hours annually)[1]	
Resident	$5,544
Non-Resident	$16,992
Student Service Fee	$512.00
Information Technology Access Fee	$99
Computer Resource Fee	$300
SBMI Technology Fee	$200
Liability Insurance	$14.50
Laboratory Fees	$180 (varies)
Graduation Fee	$75
Transportation (Student's responsibility)[2]	varies
Books, Supplies, Miscellaneous Program Expenses (see Program section)	varies
Personal Anticipated Expenses (approximations) Apartment Rent[3]	
One Bedroom (UT Housing)	$722
Daycare	varies
Health/Medical Insurance[4]	
Basic coverage for student only	$1,859
Basic for student and spouse	$8,160
Basic for children	$2,894

[1] based on 9 semester hours fall and spring and 6 semester credit hours for summer; $231 is resident cost per semester credit hour/$708 is non-resident cost per semester credit hour.

[2] the student is responsible for personal transportation and parking fees to and from the clinical practicum sites

[3] does not include utilities or food costs

[4] Student Health Insurance — Current information available from UTHealth Auxiliary Enterprises. All students are required to show proof of coverage or proof of purchase of health insurance. International students also must provide proof of repatriation coverage or the student can purchase repatriation insurance for a cost of $75/per year.

Note: All of the estimates above are subject to change without prior notification.

Estimated Program Expenses for Health Informatics Master's programs per year

The expenses, which are specific to Health Informatics, are estimated at:

Item	Estimated Expenses
Textbooks*, computer** (required), software	$3300
Lab Fees	$30 per course
$500 per practicum hour***	not to exceed $1,500

* Textbooks – SBMI students are not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.
** Computer ($2,500 first year only) requirements based on the annual recommendation of the Office of Academic Computing.
*** Practicum/Preceptor site may require additional requirements, e.g., immunizations, insurance, drug testing.

In addition, students must pay required school expenses (tuition, fee, etc.). See the Expense Table summarizing estimated expenses.

Academic Standards, Policies, and Procedures

In order for students to maintain good standing and receive appropriate grades and credits for their work, they must adhere to the School's academic policies, procedures and standards.

The School requires a high level of academic achievement from our students, and the School has defined criteria for a student in good standing, a student worthy of academic recognition and a student in academic jeopardy. A letter grading system is used to assess the student's level of achievement.

Grading System

"A" indicates excellent; "B" indicates good; "C" indicates unsatisfactory; "NC" indicates "no credit" and does not affect the GPA calculation or status of the visiting graduate student and "F" indicates failing; "P" indicates passing; "WP" or "WF" indicates that the student has withdrawn passing or failing, respectively; "I" indicates an incomplete grade, meaning that course requirements have not been satisfied. All letter grades are reported without modification of plus (+) or minus (-). Grades recorded for courses dropped after the deadline for WP or WF will be recorded as "F."

Grade point averages (GPA) are computed at the end of each semester using the following academic standard:

A = 4 points
B = 3 points
C = 2 points
NC = not counted
P = not counted
F = 0 points
WF = 0 points
WP = 0 points

Graduate level courses in which a grade of "B" or better has been earned may not be repeated for credit. Graduate level courses in which a grade of "NC" is given do not count toward degree plan requirements. Courses taken at the School in which a grade of "F" or "WF" has been earned may be repeated for credit within the School with the permission of the Dean and as course sequencing allows. Courses taken at the School in which an "F" has been earned may not be taken at another institution for credit or to raise the grade point average (GPA).

If a course in which a student earns an "F" is repeated, the student must earn a grade of "A" or "B" in that course; any grade below a grade of "B" will result in automatic dismissal.

No graduate student may earn more than two grades of "C", "WF", or "F" including grades in courses taken as concurrent enrollment even though the courses are remediated; the result will be automatic dismissal. All enrollments in courses, including repeated courses, will be reflected on the student's transcript.

An incomplete or "I" grade may be given when course requirements have not been satisfied. A student must remove a grade of "I" within one academic semester or summer session following receipt of such a grade, or the incomplete grade will be converted to the grade of "F." Grades of "I" will not be used in calculating the grade point average. All "I" grades must be removed from a student's record (course requirements satisfied) before the student is eligible for graduation.

A pass/fail grading system is used in some courses. The courses that are graded on a pass/fail basis are described in the course description section of the catalog. In these instances, a symbol of "P" is used to designate "pass" and an

"F" to designate "fail." Hours for courses taken pass/fail that are passed are not entered in the grade point calculation; however, hours for courses taken pass/fail and failed are included in the grade point calculation.

Each program establishes the maximum number of semester credits allowed for a student may take on a Pass/Fail basis during his or her study in that program. Not all courses are available on a pass/ fail basis.

Grade point average is calculated using grades and credit hours for courses except for those courses in which a grade of "I," "WP" or "P" is recorded. Also, courses in which an "F" was earned are not included in the grade point average if these courses have been repeated and passing grades obtained. The grade achieved in the repeated course is included in the calculation. Those courses taken through concurrent enrollment are not used in calculating the grade point average. Courses obtained by Petition for Equivalency Credit (PEC) and by transfer from other institutions are not used in the calculation of the grade point average.

Student in Good Standing

To be considered in "good standing" and making "satisfactory academic progress" in the School, a graduate student admitted to a graduate degree program must be following the degree plan; must maintain a cumulative grade point average of 3.0 or above; and must not be on academic probation or suspension as determined by the Associate Dean for Academic Affairs. To remain in good standing a graduate student may earn no more than one "C" grade during their program.

Academic Probation

Probation is an official warning status for a defined period of time that informs the student of unsatisfactory academic and/or professional performance, and provides the student an opportunity to improve. Any student who does not adhere to the academic and professional standards of the School is subject to probation, suspension, and/or dismissal by the Associate Dean for Academic Affairs. Academic probation will be noted on a student's transcript. When a student attains a minimum cumulative grade point average of 3.0, the student's official transcripts will reflect the student's removal from academic probation.

Criteria upon which grades are based are given at the beginning of each course in the course syllabus. Professional standards include appropriate dress, attendance, conduct, and any particular standards required by the program. If a student has questions regarding academic and professional requirements or if assistance is needed in meeting the standards, the student should consult with the course instructor or advisor.

Following the completion of the semester in which any of the following occur, the Assistant Dean for Academic Affairs will place a graduate student on academic probation if the student (1) receives a second grade of less than "B" in a graduate course while at SBMI; (2) earns a calculated cumulative grade point average (GPA) less than 3.0; (3) receives a grade of less than "B" ("C," "WF," or "F") in a required course; or (4) fails to make satisfactory progress toward the degree. The graduate student is removed from academic probation at the end of the following registration period when no grade below "B" is assigned in a graduate course, a cumulative grade point average of 3.0 are achieved, and any other cause for probation is removed or remedied.

An SBMI graduate student will be dismissed if a third grade of "C," "WF," or "F" is earned in any graduate level courses. If a grade of "C" is earned while the student is enrolled in a concurrent or Inter-institutional course, the student will be placed on probation. If it is the third grade of "C," the student will be dismissed.

A graduate-level course is a course that has HI as prefix letters and an initial number not less than 5 in the catalog number or is any graduate level at another institution.

Student Conduct and Discipline

All students are responsible for knowledge of and compliance with UTHealth policies regarding student conduct. Students are referred to the UTHealth Handbook of Operating Procedures (HOOP) Policy 186, Student Conduct and Discipline, located at https://www.uth.edu/hoop/policy.htm?id=1448220. https://www.uth.edu/hoop/186-appendix-b.htm

Grade Grievance Procedure

In attempting to resolve any student grievance regarding grades or evaluations, it is the obligation of the student first to make a serious effort to resolve the matter with the faculty member with whom the grievance originated. Individual faculty members retain primary responsibility for assigning grades and evaluations. The faculty member's judgment is final unless compelling evidence suggests differential treatment or mistake. If the evidence warrants appeal, the student must submit a request in writing within 30 days of the date of the evaluation in question and, in the case of a grade for a course, within 30 days of the date the Registrar recorded the grade of the course in question. The request for the appeal with supporting evidence must be submitted to the Associate Dean for Academic Affairs, and the appeal must be resolved by no later than the end of the semester after the semester in which the grade was earned. Upon receipt of the request, the Associate Dean for Academic Affairs will review the case and submit a copy of the appeal to the appropriate Standing Committee of the Faculty Governance Organization for review and recommendation. The Associate Dean for Academic Affairs will submit a written recommendation to the Dean. The determination of the Dean is final.

Academic Dismissal and Appeal

A student who is on academic probation for one semester and who does not achieve the minimum cumulative 3.0 GPA and the individual course grades necessary to be removed from probation or remove the cause of probationary status will be notified of dismissal from the program by the Associate Dean for Academic Affairs and will not be allowed to continue in the program.

The student may request a reconsideration of the dismissal by submitting a written request to the Dean within five working days of receipt of the dismissal letter. The student must also send a copy to the Chair of the Admissions, Progression and Graduation Committee of the Faculty Governance Organization. The student must provide evidence in support of the request for reconsideration of the dismissal. The Admissions, Progression and Graduation Committee will review the request and render its recommendation in writing to the Dean. The student will be notified in writing of the Dean's decision within seven calendar days of the Committee's recommendation. The determination of the Dean is final.

Reapplication Following Dismissal

Should a student reapply and be readmitted to the program from which he or she was dismissed, the student will be placed on scholastic probation for one semester. If the student fails to raise his or her cumulative GPA within that semester to 3.0, or if the student makes a course grade below that required to be removed from probation, or otherwise fails to meet standards to be off probation, the student will be dismissed from the School and may not be readmitted.

Grade Reports

Students may access their official term grade reports online through myUTH at https://my.uth.tmc.edu.

Change of Name, Address or Marital Status

The student's full legal name is the name recorded on the application at the time of admission. The student must report any changes in name, address or marital status to the Office of the Registrar, and to the SBMI Office of Academic Affairs. Official documents verifying a name change are required.

The student's full legal name is used on the permanent academic record, certificates, and diplomas.

Transfer Credit

Transfer credit for equivalent courses taken elsewhere may be awarded and used to meet degree requirements if their equivalency to a SBMI degree program course is approved through a Petition for Equivalency Credit (PEC). The maximum number of transferable semester credit hours is 3 for the certificate program, 12 for the master's program, and 36 for the doctoral program. Contact the Office of Academic Affairs for information.

Applicants who are presenting course work from universities or colleges outside the United States to meet admission or graduation requirements are referred to the section on International Applicants in this catalog for a listing of additional requirements.

Reentry after Non-Attendance

A student who has not enrolled in two consecutive registration periods (including the summer session) must submit to the Office of Academic Affairs a "Reentry Form" signed by the student's advisor or the Program Coordinator of Certificate Programs indicating approval for reentry to the program. A former student who has not enrolled for three or more consecutive registration periods must reapply for admission to the program and the School.

Deferment for Newly Admitted Students

A newly admitted program student is allowed up to one year for deferment. The Office of Academic Affairs must be notified of all deferments before the start of the semester. Any student who does not enroll for three consecutive registration periods shall no longer be considered a program student and must reapply for admission to the program and the School.

Withdrawal from the University

A student, who withdraws from the School at the end of, or prior to, completing a scheduled semester, should notify his or her advisor and the Associate Dean for Academic Affairs in writing. The letter should include the date of intended withdrawal and the specific reason(s) for withdrawal. The student should state if it is his or her intention to seek readmission to the course of study at a later date and, if so, the specific date he or she would wish to be readmitted. The letter should include a permanent mailing address to which any communications may be sent.

Clearance for Withdrawal, Graduation, or Dismissal

Any student who withdraws or is dismissed from, or completes a program in the School must complete the official student clearance process. Such clearance is necessary to ensure that the student has met all obligations to specified offices in the School, UTHealth, and the Texas Medical Center. A student clearance form and instructions for completing the clearance process may be obtained from the Office of Academic Affairs.

Explanation of Course Numbers

Courses are numbered by a letter prefix, which designates the program and/or division in which the course is taught, followed by a four-digit number. In all program courses, the first digit indicates the year beyond high school; the second digit is the number of semester credits given for the course, except for courses with variable credit in which the second digit is a zero; and the last two digits indicate the number the program uses to identify the course. An example of a course number is HI 5301. In this case the "HI" stands for Health Informatics; the "5" stands for fifth year; the "3" stands for three semester credits given for the course; and the "01" is the program identification number for the course. The pre-foundations courses do not conform to this standard.

The program/divisions prefixes used are:

- HI Health Informatics

Registering /Adding a Course

To register for a course, the student must first obtain approval from the student's advising committee or program advisor. If an approval code is required for registration, the student must request instructor approval via email and forward the instructor's approval to the Office of Academic Affairs at SBMIAcademics@uth.tmc.edu. Following this, the student must use myUTH at https://my.uth.tmc.edu to add the course to their schedule. Refer to the Office of the Registrar's School of Biomedical Informatics Academic Calendar for deadline dates for adding a course for any semester or session. A student will be unable to add a course after the official reporting date.

Dropping or Withdrawing from a Course

To drop a course before the official reporting date the student must go to myUTH at https://my.uth.tmc.edu.

After the official reporting date and before the last date to withdraw listed in the Office of the Registrar's School of Biomedical Informatics Academic Calendar for that semester, the student must obtain a withdrawal slip from the Office of the Registrar or the Office of Academic Affairs. Students must obtain signatures of the course instructor(s), and the Associate Dean for Academic Affairs in order to drop the course(s). The student must return the completed form to the Office of the Registrar before the deadline for dropping a course. The grade recorded on the transcript will be a "WP" (withdrawal passing) or "WF" (withdrawal failing). The instructor must assign a grade of "WP" or "WF". A "WP" is indicated on the transcript if a student has no grades recorded or has a passing grade in the course at the time the course is dropped. The "WP" will not be calculated as part of the GPA. A "WF" is recorded if the student has a failing grade at the time the course is dropped. A record of "WF" on the transcript will be calculated as an "F" in determining the GPA.

If a student does not officially withdraw from the course, a grade of "F" will be assigned. A grade of "F" is recorded if course is dropped after the deadline stated in the academic calendar for that semester or session.

Auditing a Course

SBMI does not allow auditing.

Petitioning for Course Equivalency

A student who wishes to receive credit for a course which he or she has taken at another institution and which is similar in content to any course offered at the School is to submit required documentation for a Petition for Equivalency Credit (PEC) to the Office of Academic Affairs. Courses for which grades of less than "B" were achieved will not be accepted for equivalency. For additional information, please contact the Office of Academic Affairs.

Concurrent Enrollment

SBMI students may take courses for credit at area state colleges and universities through *concurrent enrollment*. Courses taken by concurrent enrollment *will not* be counted toward full-time status of a student and *will not* be calculated into the student's GPA. Concurrently enrolled students may complete a maximum of 12 semester credit hours at SBMI and must maintain a 3.0/4.0 grade point average in those courses. Information about participating institutions and procedures for concurrent enrollment can be found on the Registrar's website at: http://www.uth.edu/registrar/current-students/student-information/concurrentinter-institutional-enrollment.htm

Inter-Institutional Enrollment

Enrollment in courses offered by private universities is made through *inter-institutional enrollment*. Courses taken through inter-institutional enrollment *will* be counted toward a student's full-time status and *will* be calculated into the student's grade point average. Inter-institutional students may complete a maximum of 12 semester credit hours and must maintain a 3.0/4.0 grade point average in those courses. Information about participating institutions and procedures for inter-institutional enrollment can be found on the Registrar's website at: http://www.uth.edu/registrar/current-students/student-information/concurrentinter-institutional-enrollment.htm

General Degree Requirements

In order to receive a degree or a certificate from the School of Biomedical Informatics, the student is required to fulfill certain academic, in residence, and degree candidacy requirements. A student must be a Program Student and must have completed all the curricular requirements of that program before being eligible for a degree or certificate.

In Residence Requirement

The term "in residence" refers to the minimum number of semester credit hours that must be earned in the School. A student must fulfill his or her in residence requirement in order to receive any academic degree or a certificate from the School. Refer to each degree section for specific semester credit hour minimum requirements.

Student Organizations

Student Governance Organization

The SBMI Student Governance Organization is made up of SBMI students. Both master and doctoral students are represented in the Student Government Organization. Any degree program student enrolled in the School is eligible to become the elected representative of his or her program.

The purpose of the Student Governance Organization is:

1. to provide students of the School an organized feedback and advisory mechanism to administration and faculty;
2. to provide students a mechanism by which they may have an impact on the decision-making process;
3. to provide social, cultural and recreational activities for students of the School; and
4. to provide representation to the UTHealth Student InterCouncil (SIC).

Student Membership in Professional Organizations

Professional organizations promote interest in the profession with specific aims toward service and fellowship for the social, intellectual and professional benefits of each member. Membership generally entitles on to the publication of the profession and the right to attend it's meetings.

SBMI students may obtain student memberships in discipline specific organizations. Discipline specific organizations include AMIA (American Medical Informatics Association), ACM (Association for Computing Machinery), IEEE (The Institute of Electrical and Electronics Engineers, Inc.), HANIA (Houston Area Nursing Informatics Association) and HIMSS (Health Information and Management Systems Society).

SBMI Research Centers

The Center for Biosecurity and Public Health Informatics Research

The Center for Biosecurity and Public Health Informatics Research (CBPHIR) was established by SBMI to coordinate research and development of next generation informatics infrastructures and technological platforms relevant to the public health preparedness, bioterrorism readiness, emergency response and situation awareness.

The Center promotes collaborative research and technology development activities in the context of:

- Bioterrorism Preparedness (Situation Awareness), Emergency Response and Command, Control and Communication, in City, County, State and National levels.
- Education, Training and Drill for emergency response and mass casualty event preparedness, using state of the art information technologies
- Community Awareness and Public Preparedness Services
- Biomedical, Clinical and Public Health Informatics

The primary mission and objectives of the Center are to be the pioneering research entity nation-wide, designing and developing the next generation of information systems and emergency response management infrastructure for public health preparedness. The center promotes a multidisciplinary collaboration environment between university researchers, private enterprises and government agencies to provide state of the art technologies, research and development infrastructures and training, education and drill opportunities for the students, scientists, and for the community.

Center for Computational Biomedicine

The Center for Computational Biomedicine (CCB) aims to support biomedical discovery by developing, evaluating, and applying novel informatics methods and software to extract and analyze heterogeneous biomedical data. Led by Hua Xu, PhD, the CCB consists of faculty, staff, and students at SBMI. It is a unique research platform that fills in gaps between bioinformatics and clinical informatics research. Current research and service activities of CCB includes:

- Healthcare Data Analysis
- Biomedical Literature Mining
- Translational Bioinformatics

Additional information regarding the Center can be found on their website: https://sbmi.uth.edu/ccb/

Gulf Coast Regional Extension Center

The mission of the Gulf Coast Regional Extension Center (GCREC) is to facilitate safe, effective, and meaningful use of state-of-the-art health information technology by all healthcare providers in the region by focusing on primary care practices and their integration with local, state, and federal Health Information Exchange activities with the ultimate goal of improving the health of the citizens they serve. The Center's priority is helping providers fully understand and take advantage of the full benefits of electronic health records. The Center enables providers to achieve meaningful use objectives, minimize financial and administrative burdens, reduce costs associated with medical errors, improve patient safety and quality of care and prepare and position providers for future pay for performance.

Additional information regarding the Center can be found on their website: https://sbmi.uth.edu/gcrec/

National Center for Cognitive Informatics and Decision Making in Healthcare

National Center for Cognitive Informatics and Decision Making in Healthcare (NCCD) is funded by the Office of the National Coordinator for Health IT under the Strategic Health IT Advanced Research Projects (SHARP) Program, which seeks to support improvements in the quality, safety and efficiency of health care through advanced information technology.

NCCD carries out interdisciplinary research projects to address the cognitive challenges identified by ONC which include:

- Work-Centered Design
- Cognitive Foundations for Decision Making
- Adaptive Decision Support
- Model-based Data Summarization

Additional information regarding the Center can be found on their website: https://sbmi.uth.edu/nccd/

Educational Programs

Health Informatics

Health Informatics is the study of how health data are collected, stored, and communicated; how these data are processed into health information suitable for scientific, administrative and clinical decision making; and how computers and telecommunications technology can be applied to support these processes. Health informaticians are in great demand and may work in various clinical, research and educational environments.

Essential Skills for Health Informaticians

Health Informatics is a collaborative discipline that builds on several other fields such as information sciences, biomedicine, computer science, and mathematics. Proficiency in each of these areas is necessary to work in health informatics. Courses are available to assist students with gaining competencies in these foundation areas, since solid background knowledge in these support areas is consistent with student success in the study of Health Informatics.

To successfully perform the duties of a health informatician, an individual must be able to think critically and analytically, must demonstrate motivation, and must have a technical understanding of the computing environment that is the basis for informatics work. Students must be able to address problems in a clear and innovative manner. Other requirements include the ability to communicate in English both verbally and in writing at the college level and to work in interdisciplinary teams. Depending on their application area, students must have demonstrable competence with a programming language, college algebra, computer literacy skills, anatomy, physiology, health language, clinical care, and operational characteristics of healthcare.

Program Philosophy

The ultimate goal of the program is to use informatics to improve the health of the people of Texas. The School strongly believes that healthcare will increasingly require a cooperative interaction among the health disciplines. The result will be practitioners who understand the technology, data, information, knowledge, assumptions and decision making of others as they attempt to design, provide and evaluate healthcare in the 21st century.

To that end, the Health Informatics Program stresses the development of interdisciplinary teams to evaluate and address the complex informatics issues that will face healthcare in the next century. Students will enter the Health Informatics Program with a strong base from their previous undergraduate or graduate studies, and will study how to communicate knowledge across traditional, professional, and organizational barriers. As they progress, students will acquire the principles and knowledge needed to organize, store, display, communicate, and evaluate that knowledge across a variety of systems: electronic, social, and political.

The Health Informatics Program will start from a strong scientific base and move to the application of informatics to a variety of areas related to the interests of students and faculty. These areas of interest may include, but are not limited to computational knowledge, electronic health record system, tele-health, patient-focused information systems, and computational biomedicine.

Health Informatics is always undergoing rapid change. New technologies, conceptual understandings, and computational processes ensure that the future will bring increasing rates of change and development. Students will have the knowledge and skills to address present issues and the adaptability to address future ones. The Health Informatics Program will strive to meet the needs of students, develop new research to advance the frontiers of the science, and be an active participant in the development and application of informatics initiatives in the community.

Program Description

The Program in Health Informatics is designed to be transdisciplinary in its focus. The Program is the first in the United States that does not reside in a discipline-specific professional school. Students come from a variety of disciplines, and work in interdisciplinary teams to better understand the knowledge unique to each discipline and how that knowledge must be translated for use by other disciplines. In developing this program, the School has worked with representatives from Texas A&M University, Baylor College of Medicine, Rice University, the University of Houston, The University of Texas Medical Branch at Galveston, The University of Texas Health Science Center at San Antonio, and Texas Woman's University to improve opportunities for students entering the Health Informatics Program and to create new electives available to the other schools.

The certificate, masters and doctoral degree programs incorporate an interdisciplinary and integrative design that is believed to be unique to the field of health informatics in the United States. Many existing informatics master and doctoral programs are organized around a specific discipline in which applications of informatics within that discipline are emphasized, e.g., medical informatics, nursing informatics, and dental informatics. The Health Informatics Program, on the other hand, is designed to be inherently transdisciplinary and integrative. This means that the fundamental informatics concepts that transcend and apply to all traditional healthcare disciplines will be emphasized. Moreover, these programs will identify and teach the major informatics concepts that integrate and link diverse health disciplines, creating focus on patient healthcare.

Individuals holding a baccalaureate or higher degree in a health-related discipline, computer science, engineering, or management information systems can apply for the graduate Health Informatics program. To complete the program, full-time students usually spend a year (three semesters) for the certificate program, two years (five semesters) for the master's program, and four years (12 semesters) for the doctoral program. Part-time enrollment is available for certificate and master's students. The course of study is initiated in the fall, spring and summer semesters. The deadline for completed applications for the certificate and master's programs is March 15 for the summer semester, July 1 for the fall semester, and November 1 for the spring semester. The course of study for the doctoral program is initiated in the fall semester. Deadline for completed applications is December 1 (for entry to the following fall semester).

The certificate program is a certificate of completion of 15 semester credit hours of graduate level courses.

UTHealth awards a Master of Science degree or a Doctor of Philosophy degree to students who successfully complete the degree program in Health Informatics.

Certificates of Health Informatics

Program Description and Goals

The School offers various Certificates of Health Informatics designed for self-motivated professionals working in the health care and information technology fields. A certificate requires the student to complete a minimum of 15 semester credit hours.

The certificates provide professionals with an increased understanding of the opportunities and challenges involved in technology integration into healthcare. They will be able to participate in designing, planning, implementing and evaluating new software and hardware solutions at their institutions. See below for certificate program details.

SBMI is experienced in providing education to working professionals. The certificate program is designed to provide quality education to professionals on their schedule. The courses are offered online for convenience of working professionals.

Upon completion of the 15 semester credit hour certificate, students will be awarded a certificate of completion from UTHealth. A transcript showing graduate credits may be obtained from the Registrar's Office.

Admission to the Health Informatics Certificate Programs

The admission process to the certificate programs is designed to get the professional working applicant into the Program by meeting minimal requirements. Each applicant must submit to the Registrar's Office the following:

1. A completed certificate application online
2. $60 application fee
3. An official transcript with the minimum of a baccalaureate or higher degree in an appropriate area, e.g., science, medicine, nursing, dentistry, MIS, or computer science. All foreign college transcripts must have been evaluated on a course-by-course basic by an independent organization such as Educational Credential Evaluators or World Education Services prior to application. Courses taken and degrees received at U.S. schools must be from regionally accredited schools.
4. Letter of Reference

Application deadlines:

Fall admission	**July 15**
Spring admission	**November 15**
Summer admission	**March 15**

Successful completion of the program requires passing each course with a grade of a "C" or above. Students may not earn more than two "C" grades. Earning a third grade of "C" results in automatic dismissal from the certificate program. Students who complete the course of study will receive a certificate of completion. The coursework earned is at the graduate level. This coursework may be transferred into a degree-seeking program. No grade lower than a "B" will be accepted to transfer into the master's or doctoral program.

Course of Study for Health Informatics Certificate Program

The Health Informatics Certificate program offers two different options. Option 1 is a set of five predetermined courses with an emphasis in Clinical Informatics:

HI 5300 Introduction to Health Informatics
HI 5313 Introduction to Electronic Health Records
HI 5314 Technology Assessment in Healthcare
HI 5360 Clinical Decision Support Systems
HI 6340 Health Information Visualization & Visual Analytics

HI 5300 Introduction to Health Informatics should be taken in the first semester. The other four courses can be taken in any order.

Option 2 is the student's choice (with advice from the certificate director) of five courses selected from the course set of the school's Master of Science program. This option allows professionals to customize their studies to meet their background and needs.

Course of Study Public Health Informatics Certificate Program

The Public Health Informatics Certificate Program offers the following course of study:

HI 5300 Introduction to Health Informatics
HI 5380 Principles and Foundation of Public Health Informatics
PH 2610 Introduction to Epidemiology
PH 1610 Introduction to Biostatistics

The fifth course is the student's choice of one of the following courses:

HI 5313 Introduction to Electronic Health Records
HI 5381 Methods in Public Health Informatics
HI 5382 Synthesis Project of Public Health Informatics
PH 1110 Social and Behavioral Aspects of Community Health
PH 2110 Overview of Environmental Health
PH 3715 Introduction to Management and Policy Sciences
PHWM 2120 Man's Impact on the Environment

PH 1610 Introduction to Biostatistics, PH 2610 Introduction to Epidemiology, HI 5310 Foundations of Health Information Sciences I, or HI 5380 Principles and Foundation of Public Health Informatics should be taken in the first semester.

Course of Study for Applied Health Informatics Certificate Program

The Applied Health Informatics Certificate Program requires completion of five graduate courses. The program offers two different options. Option 1 is a set of five predetermined courses with an emphasis in Electronic Health Records (EHRs).

HI 5300 Introduction to Health informatics
HI 5301 The U.S. Healthcare System
HI 5306 Security for Health Information Systems
HI 5313 Introduction to Electronic Health Records
HI 5328 Systems Analysis and Project Management

HI 5300 should be taken in the first semester. The other four courses can be taken in any order.

Option 2 is the student's choice (with advice from the certificate director) of five courses selected from the course set of the school's Master of Science program concentration in Applied Health Informatics. This option allows professionals to customize their studies to meet their background and needs.

Address application inquiries to:
School of Biomedical Informatics
Office of Academic Affairs
7000 Fannin Street Suite 650
Houston, TX 77030
(713) 500-3591
SBMIAcademics@uth.tmc.edu

Undergraduate 4+1 Certificate of Health Informatics

Program Description and Goals

Undergraduate students will have the opportunity to earn both a bachelor's of arts/science and a Master of Science in Health Informatics over the course of 5 years. The program is an integrated program that overlaps graduate curriculum into the student's undergraduate work which provides the opportunity to graduate with the bachelors at the same time as their graduate certificate in health informatics.

4 + 1 Program graduates will have the education, skill-set and experience needed to enter the professional work force in any of the varied fields of Health Informatics, or be well prepared to continue with their education through doctoral studies, or in professional degrees such as nursing, medicine, dentistry or pharmacy.

The student will graduate with an undergraduate degree in their selected major course of study, but will also have the opportunity to complete a master's degree in health informatics in one additional year instead of the customary two years.

Upon completion of the 15 semester credit hour SBMI certificate, students will be awarded a certificate of completion from UTHealth. A transcript showing graduate credits may be obtained from the Registrar's Office.

Admission to the 4 + 1 Program

The admission process to the 4 + 1 program is designed to get the highly successful academic undergraduate applicant into the Program by meeting minimal requirements. Each applicant must submit to the Registrar's Office the following:

1. A completed certificate application online
2. $60 application fee
3. An official transcript with the minimum of a 3.0 or higher degree in an appropriate area, e.g., biomedical science, pre-med, nursing, life sciences, MIS, or computer science. Any dual credit or AP credits must be verified on the transcript from the present college or an official transcript from the awarding college or program must be sent to the UTH Registrar's Office.
4. Letter of Reference

Application deadlines:

Fall admission	**July 15**
Summer admission	**March 15**

Successful completion of the program requires passing each course with a grade of a "C" or above. Students may not earn more than two "C" grades. Earning a third grade of "C" results in automatic dismissal from the 4 + 1 program.

Students who complete the course of study will receive a certificate of completion. The coursework earned is at the graduate level. This coursework may be transferred into a degree-seeking program. No grade lower than a "B" will be accepted to transfer into the master's or doctoral program.

Course of Study for Certificate Programs

The course requirements for earning both the undergraduate degree and graduate certificate from SBMI will vary by participating institution. Please contact the 4+1 Program Coordinator for additional information.

For 4+1 Program Information, contact:

Jeanette Broshears
UTHealth School of Biomedical Informatics
Brownsville Regional Campus
80 Fort Brown Street, RAC N2.200
Brownsville, Texas 778520
Telephone: (956) 882-6745
Email: Jeanette.L.Broshears@uth.tmc.edu

Master of Science in Health Informatics Program

Program Description and Goals

The formal study of informatics at the master's level is designed as a multi-disciplinary approach to accomplish these important goals:

1. Understand the scope of the discipline of health informatics;
2. Demonstrate knowledge of the literature of health informatics;
3. Develop informatics solutions to biomedical problems based on current research; and,
4. Utilize Electronic Health Records or other health information technologies effectively

Master of Science in Health Informatics Admission Process

The applicant should present to the Registrar's Office the following:

1. Official transcripts from every post-secondary school attended, both in the United States and abroad. Courses taken and degrees received at U.S. schools must be from regionally accredited schools. All foreign transcripts must be evaluated by a professional agency (such as Educational Credential Evaluators or World Education Services) on a course-by-course basis. This evaluation is at the applicants' expense.
2. A baccalaureate or higher degree in an appropriate area, e.g., science, medicine, nursing, dentistry, MIS, engineering or computer science
3. A personal statement detailing the applicant's interest in the program
4. A resume or curriculum vitae (as appropriate)
5. A Graduate Record Exam (GRE) or Miller Analogies Test (MAT) score
6. Grade Point Average (GPA) in previous (degrees) coursework
7. A minimum TOEFL score of 95 is acceptable on the internet based test. A minimum ILETS score is 7.
8. Three letters of reference from educators and/or employers

Applicant materials will be organized into a portfolio for review by the admissions committee. The admissions committee will consider such areas as:

- Health, MIS, Computer, or Engineering related degree
- Health-care work experience
- Database work experience
- Informatics work experience
- Demonstrated expertise in programming
- GRE or MAT score
- GPA in previous degree
- Success in overcoming social, economic or educational disadvantages, race and ethnicity.

Master of Science in Health Informatics application deadlines:

Fall admission	**July 15**
Spring admission	**November 15**
Summer admission	**March 15**

Interview

The second component for admission is a personal interview. Applicants who have been recommended by the admissions committee may be invited to interview with faculty members. The interview is expected to focus on the applicant's goals and how they can be achieved in the master's program, communication skills, and understanding of the program.

Transfer Credit

Transfer credit for equivalent courses taken elsewhere may be awarded and used to meet degree requirements if their equivalency to a SBMI degree program course is approved through a Petition for Equivalency Credit.

The maximum number of transferable semester credit hours is 12 for the master's program.

Applicants who are presenting coursework from universities or colleges outside the United States to meet admission or graduation requirements are referred to the section on International Applicants in this catalog for a listing of additional requirements.

Degree Requirements for the Master of Science in Health Informatics

Academic Requirements

Credit hours must total at least 39 semester hours for all courses in the degree plan. Each student follows a degree plan developed with an Advising Committee. A total of 39 semester credit hours must be completed prior to graduation. There are two tracks within the Master's Program. Students should work with the Office of Academic Affairs and their advisor to assure they are taking courses in their desired focus area.

A full-time student in the Program in Health Informatics has up to four years (12 semesters) from the time of entry to complete the required course work. A part-time student has up to eight years (24 semesters) from the time of entry to complete the required course work. Continuous enrollment is required unless approval from the advising committee is obtained. A maximum of one year of an approved leave of absence will be allowed for continuance in the program. If more than one year of leave occurs, the student must apply for readmission to the program.

Each course with an HI prefix in the Health Informatics degree plan is a graduate-level course and should be passed with a grade of "B" or better. Only one course grade of "C" is allowed. The minimum grade point average (GPA) required for graduation is 3.0 on all courses.

Computer Requirement

Every student is required to have reliable access to a computer that meets the minimum technical requirements. Students are encouraged to purchase a laptop that meets the minimum SBMI requirements.

Computer requirements are listed on the website (https://sbmi.uth.edu/current-students/student-handbook/computer-requirements.htm) and are subject to change.

Course of Study for the Master of Science in Health Informatics

Traditional Track

The curriculum of the traditional track for the Master of Science degree in Health Informatics includes required didactic courses and a practicum. Didactic courses (lecture/discussion, demonstration and student laboratories) are presented to provide facts, concepts, and theories related to the techniques and procedures of health informatics. The courses include instruction in basic informatics, research, advanced informatics and elective courses. The practicum is designed to give the students the opportunity to apply theory and techniques in the hospital, research, or private laboratory setting.

Each student will develop a degree plan with written approval of their advising committee. A degree plan will be filed that includes the core and required courses as specified below:

- 6 semester credit hours in foundation courses
- 12 semester credit hours in required courses
- 18 semester credit hours in elective courses (see SBMI website for suggested concentration curriculum)
- 3 semester credit hours in practicum courses.

Changes to the degree plan must be approved in advance in writing by the advisor/advising committee.

Applied Track

The curriculum of the traditional track for the Master of Science degree in Applied Health Informatics includes required didactic courses and a practicum. Didactic courses (lecture/discussion, demonstration and student laboratories) are presented to provide facts, concepts, and theories related to the techniques and procedures of health informatics. The courses include instruction in basic and applied informatics. The practicum is designed to give the students the opportunity to apply theory and techniques in the hospital, research, or private laboratory setting.

Each student will develop a degree plan with written approval of their advising committee. A degree plan will be filed that includes the core and required courses as specified below:

- 36 semester credit hours in required courses
- 3 semester credit hours in practicum courses.

Changes to the degree plan must be approved in advance in writing by the advisor/advising committee.

Practicum

Students in the Master of Science in Health Informatics must select an area of interest in which to apply the knowledge and skill gained during the didactic courses while participating in the required practicum course. Students must complete at least 24 credit hours in their master's program before participating in the practicum requirement. Students should work with the Practicum Coordinator for any necessary affiliation or program agreements with the practicum site, if agreements are not already in place. A practicum proposal must be submitted by week three of the semester of enrollment to the Practicum Coordinator and it must be approved, in writing, by the student's Faculty Practicum Advisor. Students can complete all required practicum credit hours during one semester or the course can be repeated for a maximum of 3 semester credit hours (for HI 6000) to meet degree requirements. During the course of the semester(s), student must create weekly logs to chronicle their hours, tasks, and reflections on how the duties of the practicum relate to Health Informatics courses taken. Once the student has logged all 135 clock hours and concluded all practicum projects, she or he must create in a 10 page APA format double spaced capstone report that details the major project they completed during their practicum. This report, along with other deliverables, will be submitted in completion of the practicum. If students have any questions regarding the practicum, they can contact the Practicum Coordinator or the Office of Academic Affairs.

For further curriculum information, please contact:

UTHealth School of Biomedical Informatics
Office of Academic Affairs
7000 Fannin Street Suite 650
Houston, Texas 77030
Telephone: (713) 500-3591
Email: SBMIAcademics@uth.tmc.edu

Doctor of Philosophy in Health Informatics

Program Description and Goals

This program is designed to be a research-based multi-disciplinary program involving students with a variety of backgrounds. Students will work together in teams to research real clinical and biomedical health problems. They will gain both the scientific background for research and skills needed to address problems. The program is designed to meet the unique needs of each student by using a matrix curriculum plan with an advising committee to guide each student from admission through graduation. Each student must have a faculty academic advisor to guide each student through participation in research projects.

The doctoral program in Health Informatics is conceptualized and designed to be inherently multi-disciplinary and integrative. This means that the fundamental informatics concepts that transcend and apply to all traditional healthcare disciplines will be emphasized in the doctoral program. This program will identify and teach the major informatics concepts that integrate and link diverse health disciplines.

The doctoral program in Health Informatics is constructed as a post-baccalaureate degree that not only addresses the knowledge and skills that the student brings at admission, but allows the student to build on previous knowledge and skills in order to attain the research focus needed for the completion of the doctoral program in Health Informatics.

Students admitted to the master program can apply to the doctoral track by meeting the same admission requirements as those who apply directly to the doctoral program.

Formal study of informatics at the doctoral level at UTHealth is designed to accomplish these major goals:

- Expand the scope of the discipline of Health Informatics
- Demonstrate familiarity with the health informatics research literature, including in-depth knowledge of a selected health informatics research area.
- Research and evaluate new regions or domains in Health Informatics
- Lead interdisciplinary teams in the search for solutions to Health Informatics problems
- Effectively communicate research findings to peers and to practitioners who can use the research findings.

Each student will be assigned an academic advisor (a full-time SBMI faculty member) and advising committee that will oversee that student's progress from admission to graduation. The advising committee shall be composed of the student's academic advisor, at least one other full-time SBMI faculty member, and a third faculty member who represents the student's interest or discipline area. The student's academic advisor will chair the advising committee. The advising committee will guide the student in the selection of courses and the development of the student's research interests. This continuity between the student and the advising committee will allow the faculty to understand the student's strengths and allow the student to explore areas that need to be strengthened, while allowing the student to meet individual goals for graduate research education. Students will be encouraged to work cooperatively with faculty at other institutions.

The doctoral program is a 93-semester credit hour full-time program developed as a post baccalaureate program. Part-time enrollment requires written approval of the advisor and advising committee.

Doctor of Philosophy in Health Informatics Admission Process

The applicant should present a completed application and official documentation of the following to the Registrar's Office:

1. Official transcripts from every post-secondary school attended, both in the United States and abroad. Courses taken and degrees received at U.S. schools must be from regionally accredited schools. All foreign transcripts must be evaluated by a professional agency (such as Educational Credential Evaluators or World Education Services) on a course-by-course basis. This evaluation is at the applicants' expense.
2. A baccalaureate or higher degree in an appropriate area, e.g., science, medicine, nursing, dentistry, MIS, engineering, or computer science.
3. A resume or curriculum vitae (as appropriate)
4. A Graduate Record Exam (GRE) score or Miller Analogies Test (MAT) score (required)
5. Grade Point Average (GPA) in previous degrees
6. A minimum TOEFL score of 95 is acceptable on the internet based test. A minimum ILETS score is 7.
7. Submit a brief (no more than three pages single-spaced, 12 point font size) personal statement that addresses the following items:
    a. A brief summary of your background in all relevant fields, such as biomedicine, mathematics, and computer science; describing research experience and any results that were generated in research work. Provide dates, research advisors, project titles, and references to publications.
    b. A statement of educational goals and how these goals would be advanced through the PhD program.
    c. A statement of short- and long-term career objectives, including specific information regarding short-term objectives, (any projects you may have in mind for your PhD work). Be sure to include how those objectives fit the opportunities provided by the SBMI educational and research environments.
8. Three letters of reference from educators and/or employers.

Doctor of Philosophy in Health Informatics application deadlines:

Fall admissions	March 15
Spring admissions	July 15
Summer admissions	November 15

Review by the Admissions, Progression, and Graduation (APG) Committee

Applicant materials will be organized into a portfolio for review by the admissions committee. The admissions committee will review the materials and recommend whether applicants will be offered an interview—the next step in the admissions process. The criteria that the committee considers are the same as for the master's program including prior research experience. Students who are recommended for an interview will be contacted by Office of Academic Affairs to schedule an interview.

Interview

Applicants who proceed to the next level of the admission process will be interviewed by faculty members. The interview will focus on the applicant's research goals and how they will be achieved in the doctoral program.

Faculty Governance Organization (FGO) Review and Recommendation

All interviewed applicants will be presented and discussed at a Faculty Governance Organization meeting. An admission recommendation by the FGO will be made to the Associate Dean for Academic Affairs.

Transfer Credit

Transfer credit for courses taken at other universities or institutions, submitted to meet part of the degree requirements, may be awarded following review and written approval by the student's faculty academic advisor and the Associate Dean for Academic Affairs. The maximum number of transferable credit hours for the doctoral program is 36 semester credit hours.

Credit for courses taken at other universities or institutions that are offered at SBMI is granted only through Petition for Equivalency Credit. Credit for support courses taken at other universities or institutions is approved by the students' advising committee. Contact the Office of Academic Affairs for more information.

Applicants who are presenting coursework from universities or colleges outside the United States in order to meet graduation requirements should refer to the section on International Applicants for additional requirements.

Financial Assistance

Financial assistance packages and research assistantships will be available to all students on a competitive basis to facilitate full-time doctoral education.

Degree Requirements for the Doctor of Philosophy in Health Informatics

Academic Requirements

A total of 93 semester credit hours must be completed prior to graduation. A full-time student in the Program in Health Informatics has up to eight years from the time of entry to complete the required coursework. Continuous enrollment is required unless approval from the advising committee is obtained. A maximum of one year of an approved leave of absence will be allowed for continuance in the program. If more than one year of leave occurs, the student must apply for readmission to the program.

Each course with an HI prefix in the Health Informatics degree plan is a graduate-level professional course and should be passed with a grade of "B" or better. Only one course grade of "C" is allowed. The minimum GPA required for graduation is 3.0 on all courses.

Other Requirements

In Residence Requirement: The term "in residence" refers to the requirement that a student completes 57 semester credit hours over the course of the program at UTHealth. A student must fulfill his or her in residence requirement in order to receive a doctoral degree from the School.

Course of Study for the Doctor of Philosophy in Health Informatics Program

The curriculum of the doctoral degree in Health Informatics includes required didactic courses and elective courses. Didactic courses (lecture/discussion, demonstration and student laboratories) are presented to provide facts, concepts, and theories related to the techniques, and procedures of health informatics. They include instruction in basic informatics, research, advanced informatics and support courses. The elective courses are designed to give students the opportunity to apply theory and techniques in the hospital, research, or private laboratory setting.

Each student will develop his or her curriculum with approval of the advising committee. A degree plan will be filed with the approval of the advising committee that includes a minimum of:

- 6 semester credit hours in foundational courses
- 9 semester credit hours in basic informatics,
- 12 semester credit hours in research,
- 9 semester credit hours in advanced courses,
- 6 semester credit hours in support courses,
- 9 semester credit hours in preceptorship courses,
- 21 semester credit hours in a specific research area approved by the mentor,
- 3 semester credit hours of research seminar, and
- 9 semester credit hours of dissertation.

Changes to the degree plan must have the written approval of the advising committee**.** The advising committee must approve all courses as part of the degree plan.

Advanced Preceptorship

Advanced Preceptorship is required for all PhD students. During Advanced Preceptorship, the student will develop and prepare his or her Advance to Candidacy Proposal including: defining the proposed research agenda; a review of the literature; research design, procedure and data analysis; collecting preliminary data; and scientific contribution to the discipline. The student's primary advisor and advising committee must approve the focus of the research.

Advance to Candidacy

The student must have completed 36 semester credit hours before taking the exam. The exam must be completed before the student takes more than 58 semester credit hours. The candidacy exam will consist of a written and oral presentation of the student's proposed research topic. The student will submit the written proposal to all Health Informatics faculty at least 10 working days prior to the oral presentation. The oral presentation will be open to all students, faculty, adjunct faculty, and interested parties. The exam must be completed at the 58 hour limit or a defense will be scheduled the morning of the posters session of the semester in which the student earned the 58th hour.

All faculty present at the oral presentation cast a vote to pass or fail the student. A student passes if the majority of the faculty present vote to pass and the student's primary advisor votes to pass. The student's primary advisor is included in the number of faculty present when calculating the number of votes needed to achieve a majority. If the student passes, he or she is admitted to candidacy. If the student fails, the faculty can recommend failure without another attempt or failure with the opportunity to re-defend within 30 days. If the student again fails the exam, he or she will be given the option of completing a Master of Science in Health Informatics degree, but will otherwise be dismissed from the doctoral program.

Research in Health Informatics

The research in Health Informatics will be based upon the proposal that the student submitted for the advance to candidacy exam. The student will obtain a clear understanding of the domain of knowledge and research methods needed to complete the dissertation research. The student will use this time to develop a unique research focus under the guidance of the primary advisor.

Dissertation

The faculty believe that communication and dissemination is a critical aspect of the research process. The student will have two options available for the dissertation. The first option will consist of three articles that are accepted for publication. Publication must be in journals or proceedings, which are both, peer reviewed and indexed for academic retrieval. The three papers are combined with an introduction and summary and bound as a dissertation. The second option requires the student to write a monograph or dissertation. The monograph will review the literature, research approaches and options, the data design and gathering processes. The findings and data will be discussed in the context of the published literature. The monograph will be bound.

The dissertation must be presented at an oral defense that is open to the public. All research papers, theses, and dissertations authored by degree candidates are available to interested members of the general public upon request. After the presentation, the student's advising committee votes to award the degree, allow for re-defense of the dissertation, or dismiss the student from the program without a degree.

For further curriculum information, contact:

UTHealth School of Biomedical Informatics
Office of Academic Affairs
7000 Fannin Street Suite 650
Houston, Texas 77030
Telephone: (713) 500-3591
Email: SBMIAcademics@uth.tmc.edu

Master's Dual Degree Program

Program Description and Goals

The Master of Science in Health Informatics/Master of Public Health dual degree program combines the MS degree from The University of Texas School of Biomedical Informatics at Houston with the MPH from the University of Texas School of Public Health at Houston. The training and curriculum in the dual degree program will provide students and future leaders in public health the necessary skills to be leaders in the field of Public Health Informatics. The dual degree program provides an integrated curriculum that includes a number of shared courses as well as a practicum experience and/or the thesis topic in the area of public health informatics. The selection of specific academic programs and scheduling of specific courses, fieldwork, and practica for individual students is guided by an advising committee to satisfy admission requirements. The advising committee includes faculty from both UTHealth schools.

Students in the dual degree program must be admitted separately to each UTHealth school. Students must meet the requirements of each UTHealth school for its respective degree. Admission to one program does not ensure admission to the other. Students in the dual degree program will receive a diploma from each degree program after meeting the individual requirements of each program.

Health Informatics Admissions Process

Admission Requirements

The applicant should present to the Registrar's Office the following:

1. Official transcripts from every post---secondary school attended, both in the United States and abroad. All foreign transcripts must be evaluated by a professional agency (such as Educational Credential Evaluators or World Education Services) on a course-by-course basis. This evaluation is at the applicants' expense.
2. A baccalaureate or higher degree in an appropriate area, e.g., science, medicine, nursing, dentistry, MIS, Engineering or computer science
3. A personal statement detailing the applicant's interest in the program
4. A resume or curriculum vitae (as appropriate)
5. A Graduate Record Exam (GRE) or Miller Analogies Test (MAT) score
6. Grade Point Average (GPA) in previous (degrees) coursework
7. A minimum TOEFL score of 95 is acceptable on the internet based test. A minimum ILETS score is 7.
8. Three letters of reference from educators and/or employers
9. Courses taken and degrees received at U.S. schools must be from regionally accredited schools.

Applicant materials will be organized into a portfolio for review by the admissions committee. The admissions committee will consider such areas as:

- Health, MIS, Computer, or Engineering related degree
- Health care work experience
- Database work experience
- Informatics work experience
- Demonstrated expertise in programming
- GRE or MAT score
- GPA in previous degree
- Success in overcoming social, economic or educational disadvantages, race and ethnicity.

Master of Science in Health Informatics application deadlines:

Fall admission	**July 15**
Spring admission	**November 15**
Summer admission	**March 15**

Interview

The second component for admission is a personal interview. Applicants who have been recommended by the admissions committee may be invited to interview with faculty members. The interview is expected to focus on the applicant's goals and how they can be achieved in the master's program, communication skills, and understanding of the program.

Transfer Credit

Transfer credit is not accepted for students enrolled in the dual degree program.

Public Health Informatics Core Competencies*:*

The curriculum is designed to deliver training and improve skills in the following informatics competency domains.

- The ability to determine and operationalize the existence, structure, and utility of the public health and health data standards, databases and networks within a specific domain area.
- The ability to determine, translate and operationalize the functions and operations of information technologies that have significant application to public health practice (such as graphical information systems and the web---based information dissemination) in daily public health practice.
- The ability to specify the requirements for the development and adaptation of information systems to address informational needs and requirements of a real world public health setting.
- The ability to plan, analyzes, evaluate and manage implementation of public health information system projects in their organization within a specific domain area, within the core competency areas of public health practice and in accordance with national, academic and industrial frameworks and standards governing the design, implementation and evaluation of public health information systems and health data definitions and standards.
- The ability and skill in information technology planning and procurement related to public health information systems.

Dual Degree Requirements for the Master of Health Informatics

Academic Requirements

Each student follows a degree plan developed with the Dual Degree Program Coordinator. A total of 40 semester credit hours must be completed prior to graduation.

A full-time student in the dual degree program has up to five years (15 semesters) from the time of entry to complete the required course work. A part-time student has up to ten years (30 semesters) from the time of entry to complete the required course work. Continuous enrollment is required unless approval from the advising committee is obtained. A maximum of one year of an approved leave of absence will be allowed for continuance in the program. If more than one year of leave occurs, the student must apply for readmission to the program.

Only one course grade of "C" is allowed. Each course with a HI prefix in the Health Informatics degree plan is a graduate level professional course and must be passed with a grade of "B" or better. The minimum grade point average (GPA) required for graduation is 3.0 on all HI courses.

Computer Requirement

Every student is required to have reliable access to a computer that meets the minimum requirements. Students are encouraged to purchase a laptop that meets the minimum UTHealth requirements.

Computer requirements are listed on the website (https://sbmi.uth.edu/current-students/student-handbook/computer-requirements.htm) and are subject to change.

Course of Study for Public Health Informatics

The curriculum for the Master of Science in Health Informatics and the Master of Public Health include required didactic courses and a practicum. Didactic courses (lecture/discussion, demonstration and student laboratories) are presented to provide facts, concepts, and theories related to the techniques and procedures of public health courses, and support courses. The public health informatics practicum is designed to give the students the opportunity to apply theory and techniques in the hospital, research, or private laboratory setting.

Each student will develop a degree plan with written approval of their advising committee. A degree plan will be filed that includes a minimum of:

- 6 semester credit hours in foundation courses
- 6 semester credit hours in basic informatics
- 13 semester credit hours in research (includes 2 shared courses with SPH)
- 3 semester credit hours in advanced courses
- 9 semester credit hours in support courses (includes 3 shared courses with SPH)
- 3 semester credit hours in practicum courses

Changes to the degree plan must have the written approval of the advising committee.

Practicum

Students in the dual degree program must select an area of interest in which to apply the knowledge and skill gained during the didactic courses while participating in the required practicum course. Students must complete at least 24 credit hours in their master's program before participating in the practicum requirement. Students should work with the Practicum Coordinator for any necessary affiliation or program agreements with the practicum site, if agreements are not already in place. A practicum proposal must be submitted by week three of the semester of enrollment to the Practicum Coordinator and it must be approved, in writing, by the student's Faculty Practicum Advisor. Students can complete all required practicum credit hours during one semester or the course can be repeated for a maximum of 3 semester credit hours (for HI 6000) to meet degree requirements. During the course of the semester(s), student must create weekly logs to chronicle their hours, tasks, and reflections on how the duties of the practicum relate to Health Informatics courses taken. Once the student has logged all 135 clock hours and concluded all practicum projects, she or he must create in a 10 page APA format double spaced capstone report that details the major project they completed during their practicum. This report, along with other deliverables, will be submitted in completion of the practicum. If students have any questions regarding the practicum, they can contact the Practicum Coordinator or the Office of Academic Affairs.

Program	**Required Semester Credit Hours**
Master's in Health Informatics (MS)	40
Master's in Public Health (MPH)	45
Total Semester Credits	85
Shared Courses	-24
GRAND TOTAL FOR COMBINED DEGREES	61

For Dual Degree Program Information, contact:

Jeanette Broshears
UTHealth School of Biomedical Informatics
Brownsville Regional Campus
80 Fort Brown Street, RAC N2.200
Brownsville, Texas 778520
Telephone: (956) 882-6745
Email: Jeanette.L.Broshears@uth.tmc.edu

Master of Public Health and Doctor of Philosophy in Health Informatics Dual Degree Program

Program Description and Goals

The MPH/PhD dual degree programs combine the MPH from the University of Texas School of Public Health at Houston with the PhD degree from the University of Texas School of Biomedical Informatics at Houston. The training and curriculum in the dual degree program will provide students and future leaders in public health the necessary skills to be leaders in the field of Public Health Informatics. The dual degree program provides an integrated curriculum that includes a number of shared courses as well as a practicum experience and/or the thesis topic in the area of public health informatics. The selection of specific academic programs and scheduling of specific courses, fieldwork, and practica for individual students is guided by an academic advisor from SBMI and an advising committee, which can include faculty from both UTHealth schools.

Students in the dual degree program must satisfy admission requirements and be admitted separately to each program. Students must meet the requirements of each program for its respective degree. Admission to one program does not ensure admission to the other. Students in the dual degree program will receive a diploma from each degree program after meeting the individual requirements of each program. Admission does not have to be done at the same semester for each school but must be done before reaching the maximum hours set by each School.

Dual Degree Application Process

The application process for the Master of Public Health is determined by the School of Public Health. The application process for the Doctor of Philosophy in Health Informatics is determined by the School of Biomedical Informatics. Refer to the standard PhD program application process.

Transfer Credit

Transfer credit for courses taken at other universities or institutions, submitted to meet part of the degree requirements, may be awarded following review and written approval by the student's faculty academic advisor and the Associate Dean for Academic Affairs. The maximum number of transferable credit hours for the MPH/PHD dual program is 21 semester credit hours which does not to include the 15 shared semester credit hours with the SPH.

Credit for courses taken at other universities or institutions that are offered at SBMI are granted only through Petition for Equivalency Credit. Credit for support courses taken at other universities or institutions is approved by the students' advising committee. Contact the Office of Academic Affairs for more information.

Applicants who are presenting coursework from universities or colleges outside the United States in order to meet graduation requirements should refer to the section on International Applicants for additional requirements.

Financial Assistance

Financial assistance packages and research assistantships will be available to all students on a competitive basis to facilitate full-time doctoral education.

Degree Requirements for the Doctor of Philosophy in Health Informatics

Academic Requirements

A total of 93 semester credit hours must be completed prior to graduation. A full-time student in the Program in Health Informatics has up to eight years from the time of entry to complete the required coursework. Continuous enrollment is required unless approval from the advising committee is obtained. A maximum of one year of an approved leave of absence will be allowed for continuance in the program. If more than one year of leave occurs, the student must apply for readmission to the program.

Each course with an HI prefix in the Health Informatics degree plan is a graduate-level professional course and should be passed with a grade of "B" or better. Only one course grade of "C" is allowed. The minimum GPA required for graduation is 3.0 on all courses.

Other Requirements

In Residence Requirement: The term "in residence" refers to the requirement that a student completes 57 semester credit hours over the course of the program at UTHealth. A student must fulfill his or her in residence requirement in order to receive a doctoral degree from the School.

Course of Study for the Doctor of Philosophy in Health Informatics Program

The doctoral degree is a post baccalaureate program. The curriculum of the doctoral degree in Health Informatics includes required didactic courses and preceptorship courses. Didactic courses (lecture/discussion, demonstration and student laboratories) are presented to provide facts, concepts, and theories related to the techniques, and procedures of health informatics. They include instruction in basic informatics, research, advanced informatics and support courses. The preceptorship courses are designed to give students the opportunity to apply theory and techniques in the hospital, research, or private laboratory setting.

Each student will develop his or her curriculum with approval of the advising committee. A degree plan will be filed with the approval of the advising committee that includes a minimum of:

- 6 semester credit hours in foundational courses
- 9 semester credit hours in basic informatics,
- 12 semester credit hours in research,
- 9 semester credit hours in advanced courses,
- 6 semester credit hours in support courses,
- 9 semester credit hours in preceptorship courses,
- 21 semester credit hours in a specific research area approved by the mentor,
- 3 semester credit hours of research seminar, and
- 9 semester credit hours of dissertation.

Changes to the degree plan must have the written approval of the advising committee**.** The advising committee must approve all courses as part of the degree plan.

Advanced Preceptorship

Advanced Preceptorship is required for all PhD students. During Advanced Preceptorship you will develop and prepare your Advance to Candidacy Proposal including: defining your proposed research agenda; a review of the literature; research design, procedure and data analysis; collecting preliminary data; and scientific contribution to the

discipline. The student's faculty academic advisor and advising committee must approve the focus of the research. See the SBMI Student Handbook for further details.

Advance to Candidacy

The student must have completed 36 semester credit hours before taking the exam. The exam must be completed before the student takes more than 58 semester credit hours. The candidacy exam will consist of a written and oral presentation of the student's proposed research topic. The student will submit the written proposal to all Health

Informatics faculty at least 10 working days prior to the oral presentation. The oral presentation will be open to all students, faculty, adjunct faculty, and interested parties. The exam must be completed at the 58 hour limit or a defense will be scheduled the morning of the posters session of the semester in which the student earned the 58th hour.

All faculty present at the oral presentation cast a vote to pass or fail the student. A student passes if the majority of the faculty present vote to pass and the student's mentor votes to pass. The student's mentor is included in the number of faculty present when calculating the number of votes needed to achieve a majority. If the student passes, he or she is admitted to candidacy. If the student fails, the faculty can recommend failure without another attempt or failure with the opportunity to re---defend within 30 days. If the student again fails the exam, he or she will be given the option of completing a Master of Science in Health Informatics degree, but will otherwise be dismissed from the doctoral program.

Advanced Preceptorship

Advanced Preceptorship is required for all PhD students. During Advanced Preceptorship you will develop and prepare your Advance to Candidacy Proposal including: defining your proposed research agenda; a review of the literature; research design, procedure and data analysis; collecting preliminary data; and scientific contribution to the discipline. The student's faculty academic advisor and advising committee must approve the focus of the research. See the SBMI Student Handbook for further details.

Research in Health Informatics

The research in Health Informatics will be based upon the proposal that the student submitted for the advance to candidacy exam. The student will obtain a clear understanding of the domain of knowledge and research methods needed to complete the dissertation research. The student will use this time to develop a unique research focus under the guidance of the academic advisor.

Dissertation

The faculty believes that communication and dissemination is a critical aspect of the research process. The student will have two options available for the dissertation. The first option will consist of three articles that are accepted for publication. Publication must be in journals or proceedings, which are both, peer reviewed and indexed for academic retrieval. The three papers are combined with an introduction and summary and bound as a dissertation. The second option requires the student to write a monograph or dissertation. The monograph will review the literature, research approaches and options, the data design and gathering processes. The findings and data will be discussed in the context of the published literature. The monograph will be bound.

The dissertation must be presented at an oral defense that is open to the public. All research papers, theses, and dissertations authored by degree candidates are available to interested members of the general public upon request. After the presentation, the students' advising committee votes to pass or fail the student. If the student

passes and all degree requirements have been met, the advising committee makes its recommendation to the Associate Dean for Academic Affairs whether to award the degree.

Program	**Required Semester Credit Hours**
Doctorate in Health Informatics (PhD)	93
Master's in Public Health (MPH)	45
Total Semester Credits	**138**
Shared Courses	-24
GRAND TOTAL FOR COMBINED DEGREES	114

Applications are accessible at https://www.uth.edu/registrar/. If further assistance is needed contact:

Office of the Registrar
The University of Texas Health Science Center at Houston
7000 Fannin, Suite 2250
Houston, Texas 77030
Telephone: (713) 500-3388
Email address: registrar@uth.tmc.edu

For Public Health Informatics, contact:

Jeanette Broshears
UTHealth School of Biomedical Informatics
Brownsville Regional Campus
80 Fort Brown Street, RAC N2.200
Brownsville, Texas 778520
Telephone: (956) 882-6745
Email: Jeanette.L.Broshears@uth.tmc.edu

Course Descriptions

(Course descriptions are not intended as an assurance or warranty of achievement of specific skills or knowledge.)

HI 5001 Special Topics in Health Informatics
3 semester credit hours/meets part of the basic informatics competencies

This course provides a timely way to examine cutting-edge topics of interest to students and faculty. The varying content may include topics such as: technical writing in health informatics, comparing knowledge use across disciplines, and computational knowledge methods in health informatics. This course may be repeated as topics vary.

HI 5004 Introduction to Clinical Health Care
3 semester credit hours/meets part of the basic informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: Consent of instructor

This course will present a survey of the modern American health care system. The course will focus on the major pieces of legislation that serve as the foundation of the current U.S. health care structures. Topics in the course will include Medicare, Medicaid and HIPAA, their impacts on health care payment systems, health care access and professional roles. The course will integrate current legislative actions, public concerns, implications, and discussions surrounding health care reform. The meaningful use of electronic health records and its impact on health care delivery will be explored.

HI 5007 Data Structures and Algorithms in Biomedicine
3 semester credit hours/meets part of the basic informatics competencies
Web-based instruction
Prerequisite: Consent of instructor

This course is one of the core competency courses for biomedical informatics at SBMI. It is tailored for those students who would like to solidify or further develop their computer science and programming skills necessary for their biomedical informatics graduate program studies. We will use Python as a vehicle to study essential concepts and skills in data structures and algorithms, and their applications in biomedical informatics. Access to a computer is required and students should expect a reasonable amount of programming assignments. By the end of the semester students should have obtained a solid foundation and necessary computer science skills to tackle challenging problems in biomedical informatics.

HI 5300 Introduction to Health Informatics
3 semester credit hours/meets part of basic informatics competencies
Web-based instruction

This introductory graduate-level course covers the discipline of informatics in health care delivery and is designed to be multidisciplinary in nature. The course will focus on the clinical aspects of information technology and provides a broad overview to the nature of information technology, focusing on hardware, software and conceptual models of information. Students will explore different data types and data models specific to their discipline and those that can be shared across disciplines. The focus will be on comparing and contrasting the

data types and data models of the different disciplines. Students will be oriented to the various health informatics professional organizations, learn about the entire health information ecosystem and the interrelationships between the component parts of a system, as well as the importance of health information systems within the larger health care delivery system.

HI 5301 The U.S. Health Care System
3 semester credit hours/meets part of the basic informatics competencies
Web-based instruction

This course will present a survey of the modern American health care system. The course will focus on the major pieces of legislation that serve as the foundation of the current U.S. health care structures. Topics in the course will include Medicare, Medicaid, and HIPAA, their impacts on financing, health care access and professional roles. The course will integrate current legislative actions, public concerns, implications, and discussions surrounding health care reform.

HI 5302 Cognitive Science in Health Informatics
3 semester credit hours/meets part of basic informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course is an introduction to cognitive science – the interdisciplinary study of mind and behavior from an information processing perspective – and its application to health informatics. The course begins with a basic introduction to human cognition and information processing (both symbolic and connectionist), then presents a broad survey of the health informatics areas to which cognitive science has been applied. These areas include health problem solving and education, decision support systems, user-centered interfaces, and the design and use of controlled medical terminologies.

HI 5304 Advanced Database Concepts in Health Informatics
3 semester credit hours/meets part of research informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 5007

In this course, students will use both relational and object-oriented databases to model aspects of health care delivery. Working in teams, students will analyze a practical problem related to a clinical health care situation and model the necessary information into a data model. Development of the data model will include the use of CASE tools. The data model will be discussed with health professionals in clinical practice for relevance and accuracy. The feedback from the clinical area will be used to the models and to evaluate the development process.

HI 5305 Legal and Ethical Aspects of Health Informatics
3 semester credit hours/meets part of the basic informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Web-based instruction

Health informatics involves rapidly changing technology, which impacts the way in which legal and ethical considerations are understood in our culture. This course will examine the relationships between law and ethics. Particular considerations will be given to the concepts of privacy, autonomy, responsibility and decision-making. These

concepts will be discussed from both legal and ethical perspectives in the policy and regulatory arena. The impact of current and future technology, such as patient portals and social media, will be discussed as it relates to these concepts and the impact on health informatics.

HI 5306 Security for Health Information Systems
3 semester credit hours/meets part of the basic informatics competencies
Web-based instruction

This course will address security issues as they impact health information systems. Physical security of the hardware and software including redundancy, back up and restricted access will be discussed. Security and appropriateness of access will be addressed in terms of both hardware and software solutions. Data integrity, audit ability and system integrity will be considered along with the unique problems, such as the hacking of implantable devices, wired, wireless, and cellular networks, as well as the challenges of personally owned devices. Solutions to these concerns will be discussed in terms of industry standards, those that already exist, and those that are still evolving. Compliance with the HIPAA Security Rule, including the requirement for an annual risk analysis, will be covered. Students will write and evaluate policies, analyze security regulations, and conduct a mock risk analysis.

HI 5310 Foundations of Health Information Sciences I
3 semester credit hours/meets part of foundations competencies
Lecture contact hours: 2; Lab contact hours: 3
Web-based and classroom instruction

This course provides an overview of topics, concepts, theories and methods that form the foundations of health information sciences. It gives students the fundamental knowledge and skills to pursue further study in health informatics. Foundations I presents a general framework for health information science as the construction and use of symbolic, mathematical, and computational models for solving problems throughout the range of biomedical science, from genetics to clinical care to public health. It covers concepts, theories and methods that deal with how biomedical information is acquired, discovered, represented, managed, organized, communicated, retrieved, and processed. It also provides an overview of the primary research and application areas in health information science.

HI 5311 Foundations of Health Information Sciences II
3 semester credit hours/meets part of foundations competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 5310

This course provides an overview of theories and methods that are broadly applicable to all health informaticians. It gives students the theoretical and methodological background needed to pursue study in health informatics. The course begins with theories of information from computational, philosophical, mathematical, logical and biomedical perspectives.

HI 5313 Introduction to Electronic Health Records
3 semester credit hours/meets part of basic informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Web-based instruction
Prerequisite: Consent of instructor

This course is designed to provide informatics students with an overview of the key concepts regarding implementation of a clinically-oriented information system (e.g., an electronic medical record, computer-based provider order entry). The course will examine how health data are collected, how they are used and the impact of electronic records on the health data. The course will review standards, standards development, languages used, usability and issues related to information processing in health care. The course will review the impact of electronic records and patient portals on health and health care including, legal, financial, and clinical design issues. Challenges encountered during training and go-live will be discussed. Students will receive hands-on experience with an electronic health record in the training environment.

HI 5314 Technology Assessment in Health Care
3 semester credit hours/meets part of basic informatics competencies
Web-based instruction
Prerequisites: Basic statistics knowledge, HI 5315, and consent of instructor

This course will focus on methods and processes to evaluate positive and negative impacts of various techniques, technologies and interventions in health care. The focus will be standard approaches for measuring various outcomes, and development and evaluation of technology assessment models. The course will also focus on merging multiple measures outcomes measurement to conduct unified approach to evaluate the effectiveness of planned / implemented technologies, or to compare different options. Finally, the course will explore tools/software for the technology assessment. In this course, "Technology in Health care" will be used in a very broad sense, encompassing all interventions, equipment, treatment, etc., that are used in the health care field to care for consumers.

HI 5315 Quality and Outcome Improvement in Health care
3 semester credit hours/meets part of basic informatics competencies
Web-based instruction
Prerequisite: Basic statistics knowledge

This introductory course provides an overview to health care quality from the view of information science and the discipline of informatics. It takes a patient-centered approach that covers the complexities of quality and the scientific basis for understanding the measurement and improvement of quality, including exposure to multiple measures from a variety of organizations and measure comparison sites such as Medicare Compare. It provides the learner with a framework for key theories and concepts and models of quality improvement. Students will be introduced to health information technology safety issues, including tools for operationalizing HIT safety. Learners will be introduced to data quality, the challenges of data from devices and e-quality measures, as well as experience the challenge of calculating quality measures with data from the EHR. The merging of quality outcomes with evolving reimbursement paradigms and models will be examined.

HI 5327 Standards in Health Informatics
3 semester credit hours/meets part of the basic informatics competencies
Web-based instruction

Unlike much of the world, American health care standards are frequently developed by private organizations rather than the government. The Standards Development Organizations (SDOs) create an alphabet soup of organizations that are often not well known to people within health care, let alone those just entering the field. This course will explore the history of a variety of SDOs, examining their membership and focus domain. Students will examine the role of the major SDOs and their impact on the structure and function of health care delivery in the United States. The relationship between U.S. and international standards organizations will be reviewed.

HI 5328 Systems Analysis and Project Management
3 semester credit hours /meets part of the basic informatics competencies
Web-based instruction

This course is an introduction to both systems analysis and project management. The student will have the opportunity to learn more about the approaches and tools available for systems analysis. Additionally, the student will learn more about the roles, responsibilities, and duties of a project manager. Moreover, the student will learn project management methods and the core activities of a project manager as well as the tools and techniques required to ensure the success of a large health care information technology project such as the implementation of a system or the evaluation of an existing system. Specific emphasis will be on training and support during go-live, total costing of projects, and explicit change management techniques.

HI 5329 Assessment and Evaluation
3 semester credit hours/meets part of the basic informatics competencies
Web-based Instruction

Students in this course will learn how to identify and assess different aspects of health care systems and health care workflow as well as how to evaluate a health information system. Students will learn the skills needed to assess and help improve workflow and the quality of health care delivery, with a special emphasis on optimization after implementation. Students will also be introduced to different methods of evaluation and how they would apply to health information systems, as well as the use of health information systems themselves.

HI 5330 Introduction to Bioinformatics
3 semester credit hours/meets part of basic informatics competencies
Web-based and classroom instruction

The course gives a comprehensive entry-level introduction to bioinformatics. It covers a wide variety of topics in bioinformatics, including but not limited to sequence analysis, protein structure, genome analysis, database and transcription profiling. Two major goals are 1) to help students understand the scope, basic concepts and theory of bioinformatics; and 2) to become familiar with tools for bioinformatics-related data analysis. Programming skills are not necessary. A laptop computer is necessary if students want to practice with bioinformatics software and tools in class.

HI 5351 Research Design and Evaluation in Health Informatics
3 semester credit hours/meets part of research informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course provides the student the opportunity to develop more advanced competencies in the design, analysis, interpretation and critical evaluation of experimental, quasi-experimental, pre-experimental and qualitative health informatics research and evaluation studies. The student will identify flaws or weaknesses in research and evaluation designs, choose which of several designs most appropriately tests a stated hypothesis or controls variables potentially jeopardizing validity, and analyze and interpret research and evaluation results. Through exposure to the basic " building block" designs, students will have the opportunity to develop the competence to appropriately choose and use the most important and frequently used design procedures for single or multifactor research or evaluation studies.

HI 5352 Statistical Methods in Health Informatics
3 semester credit hours/meets part of research informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course provides the student the opportunity to develop essential competencies in the measurement, design, analysis, interpretation and critical evaluation of health, information, and behavioral science research and evaluation studies. Students will have the opportunity to learn and apply the most important and most frequently used statistical measures and methods, as well as critically evaluate their appropriate use. Topics include the study of frequency distributions, measures of central tendency, variance, hypothesis testing, correlation and both parametric and non-parametric inferential methods including t-tests, analysis of variance, chi-square, Kruskal-Wallis, Mann-Whitney, and Wilcoxon tests of significance, as well as tests of measures of association.

HI 5353 Health Informatics Data Analysis
3 semester credit hours/meets part of research informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 5351 or HI 5352 or consent of instructor

This course provides the student the opportunity to know when and how to use state-of-the-art data analysis computer software to perform each of a comprehensive set of the most important and frequently used data analysis techniques for research and evaluation in health informatics. The student will choose the most appropriate data analysis tools to perform qualitative, descriptive, inferential, parametric, non-parametric, multifactor and multivariate techniques, as well as graphical data modeling analytic techniques using the computer. Qualitative data analysis and related software will demonstrate alternate methods for data collection and reduction.

HI 5354 Cognitive Engineering in Health Informatics
3 semester credit hours/meets part of research informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 5302 or consent of instructor

This course focuses on cognitive engineering techniques for designing user-centered health information systems. Such systems provide appropriate functionality to the user, are easy to use and learn, reduce the chance of

user error, and increase user efficiency. The course emphasizes how human cognitive abilities and limitations impose requirements on the design of effective interfaces. It covers the theory and practical application of several cognitive engineering techniques, including cognitive task analysis, verbal protocol analysis, propositional analysis and cognitive walkthroughs.

HI 5360 Clinical Decision Support Systems
3 semester credit hours/meets part of the basic informatics competencies
Web-based instruction

This course is designed to provide an overview of decision support systems in health care, with a particular emphasis on design, evaluation and application of clinical decision support systems (CDSS) across all health care settings – in-patient, ambulatory care, long-term care, pharmacy, etc. The course explores the background and features of CDSS. Students will understand the mathematical foundations of knowledge-based systems, learn to identify areas which might benefit from a decision support system, evaluate the challenges surrounding development and implementation and consider issues of CDSS appropriateness and usability. The course also includes a detailed discussion of issues in clinical vocabularies and other important issues in the development and use of CDSS, and provides guidance on the use of decision support tools for patients. Students will have hands-on experience with EHR CDSS modification.

HI 5371 – Business and Technical Writing
3 semester credit hours/meets part of the advanced informatics competencies

This course provides the advanced skills necessary to write a full range of business documents, including letters, memos, emails, technical and non-technical user guides, training documentation, system documentation and application tip sheets, as well as policy, governance, and decision briefs. The reason for and appropriate uses of each of these types of documents will be examined. There will also be an introduction to scientific writing, which will be compared and contrasted with business writing. Students will also learn to evaluate literature and evidence for publication bias and appropriateness. The course covers the purpose of each of these components, discusses properties that distinguish good components from bad, and presents techniques for producing high-quality business or scientific writing. Students will apply these techniques by examining selected documents and published papers, producing their own writing, and critiquing the writing of others in class.

HI 5380 Principles and Foundations of Public Health Informatics
3 semester credit hours/meets part of the basic informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course will introduce foundation knowledge of public health informatics (PHI). Students will explore how information sciences and computer sciences can be applied to enhance public health practice, research and education. Content will include current standards, databases, networks, information systems and technologies applied to public health. In addition, this course will cover national and regional initiatives and legal aspects of public health informatics. Students will gain hands-on experience by involvement in team projects. The projects will explore a specific problem domain, seeking to critically analyze and propose practical solutions.

HI 5381 Methods in Public Health Informatics
3 semester credit hours/meets part of the basic informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course introduces practical methods and techniques used in PHI. The course will focus on methods for evaluation of the effectiveness and efficiency of public health protection and delivery. The course modules are organized into three domain knowledge of PHI methods: 1) Legal and policy framework of PHI; 2) GIS and spatial analysis; and 3) Evaluation and knowledge management of PHI. The course is designed to familiarize students with methods for addressing the core concepts and issues confronting public health practitioners and researchers in planning, implementation and evaluation of information systems.

HI 5382 Synthesis Project of Public Health Informatics
3 semester credit hours/meets part of the advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course provides an opportunity for students to gain practical, hands-on cumulating knowledge and experience in PHI. This project should reflect a substantial effort and competency of synthesis in informatics developed through the course training that address core competencies of the PHI system by working through a problem of the student's choice. The selected problem should be discussed and approved by a faculty mentor. This should be tied to research/practice of a student's interest that includes one or more didactic modules covered in the prior courses. The synthesis project should be based upon the combined efforts of (online) library database search, fieldwork, and mentored research approved by the mentor(s). Expectations of the class include the presentation of the conclusions from the project in a written manner for academic dissemination as a conference abstract/poster.

HI 6000 Practicum in Health Informatics
1-3 semester credit hours (variable hours/week)
Prerequisite: Consent of practicum coordinator

During the practicum, each student will select an area of interest in which to apply the knowledge and skills gained during the didactic courses. Students will become active participants in the work of developing informatics-based applications. Each student will develop a specific set of goals, to be approved by the student's advising committee and practicum supervisor, to be accomplished. These goals will reflect the student's area of interest and the needs of the organization. This course is graded on a pass/fail basis and is repeated for a maximum of six semester credit hours to meet degree requirements.

HI 6001 Special Topics in Health Informatics
3 semester credit hours/meets part of the advanced informatics competencies
Prerequisite: Consent of instructor

This course provides a timely way to examine cutting- edge topics of interest to students and faculty. The varying content may include topics such as technical writing in health informatics, comparing knowledge use across disciplines or computational knowledge methods in health informatics. May be repeated as topics vary.

HI 6002 Directed Study in Health Informatics
1-9 semester credit hours/meets part of advanced informatics competencies (variable hours/week)
Prerequisite: Consent of instructor

This course provides a mechanism for students to explore issues of personal interest in the field of health informatics. The varying content may include topics such as display of large scale nursing data, mapping issues for dentistry or linking public health knowledge to clinical medicine. This course may be graded on a letter grade or pass/fail basis, and may be repeated as topics vary.

HI 6300 Advanced Health Information Systems
3 semester credit hours/meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 5300

This course will examine advanced concepts in health informatics systems, including mechanisms for linking current information systems with legacy systems, network-based information systems, community health information systems (CHINs) and communication among disparate information systems. Topics will include identifiers, electronic data interchange systems and new models of information systems. Emphasis will be given to issues of how computational knowledge techniques affect the kind and type of knowledge displayed. Automation of knowledge reorganization as it is transferred among disciplines and settings will be discussed.

HI 6301 Health Data Display
3 semester credit hours/meets part of advanced informatics competencies
Web-based instruction

This course will examine the evaluation and design of information displays for health care. The course will focus on three areas: (1) Theories and methodologies for the evaluation of information displays; (2) Techniques and tools for generating effective information displays through visualization; and (3) How the formats of information displays affect decision making in health care.

HI 6302 Knowledge Modeling and Engineering in Health Informatics
3 semester credit hours/meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course covers in-depth the methods and techniques for knowledge modeling and engineering in health care. This includes an introduction on how to conduct a task analysis and how to collect and analyze domain knowledge gathered from reference sources or expert behavior. The course also covers how these methods and techniques are used to construct health informatics systems that are more robust, more helpful and easier to use than systems engineered without these techniques. Also covered are various techniques for evaluating the accuracy and effectiveness of the constructed systems from experimental data. The students also have an opportunity to engineer knowledge models using connectionist representations. Throughout the course, emphasis is placed on how knowledge engineering is used to design decision support tools, tutoring systems and educational improvements for health informatics. In the second part of the course, students are given a knowledge engineering task in a health care area for which they must develop a knowledge model and then construct and evaluate a knowledge-based system.

HI 6303 Introduction to Telehealth
3 semester credit hours/meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

The course will provide an overview of telehealth in the context of the general health care system. It will survey the application of telehealth in various medical specialties and different settings, e.g., rural, military/aerospace and corrections. The course will identify key issues in implementing and operating a telehealth program, including technology, economics, law/ethics, training, protocol development, and evaluation.

HI 6305 Social Dynamics and Health Information
3 semester credit hours/meets part of advanced informatics competencies
Web-based instruction
Prerequisite: HI 5300 or HI 5310 or consent of instructor

The implementation of information systems will not only greatly enhance the quality of health care but also radically change the nature of health care. This course will look at health care as a distributed system composed of groups of people interacting with each other and with information technology. Two major areas will be covered in the course. The first area is computer-supported cooperative work (CSCW), which is defined as computer-assisted coordinated activity such as reasoning, problem solving, decision-making, routine tasks and communication carried out by a group of collaborating individuals who interact with complex information technology. Most health information systems (such as EMR) are large groupwares that support large numbers of synchronous and asynchronous users with diverse backgrounds in the executions of many different types of tasks. The second area is the social impact of information technology. This area will focus on the impact of the Internet on health care, such as the functions and impacts of virtual communities, online health groups, and telehealth care through the web.

HI 6306 Information and Knowledge Representation in Health Informatics
3 semester credit hours/meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

The purpose of this course is to examine the role of information representation, controlled vocabularies and knowledge engineering constructs such as ontologies in conceptualization, design and implementation of modern health information systems. The course will introduce approaches for representing information and knowledge in a distributed network of health information systems. Moving beyond a general understanding of taxonomies, students will gain an understanding of the conceptual foundations of ontologies, including the limitations of the modern systems. Knowledge modeling and engineering principals will be introduced through lectures, hands-on practice and the class project. This will include the design, construction and use of ontologies in health care applications. Through hands-on experience, students will gain insight into the strengths and limitations of the existing resources, approaches and systems as well as point to directions where future work needs to be done.

HI 6308 Consumer Informatics

3 semester credit hours/meets part of advanced informatics competencies

Lecture contact hours: 2; Lab contact hours: 3
Prerequisites: Consent of instructor

Current technology is giving the consumer greater access to health information than at any time in the past. Information is available from federal agencies, volunteer organizations, consumer services and direct consumer---to---consumer communications. The availability of information with varying degrees of quality is changing the way consumers think about their own health as well as changing the relationship between consumers and providers. Students will explore the impact of this technology, consider the directions which the current technology might head and explore the potentials of future technology on the delivery of healthcare. This is a research course and students will be required to complete a research project that contributes to a broader understanding of consumer health informatics.

HI 6309 Healthcare Interface Design

3 semester credit hours /meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisites: Consent of instructor

This course covers topics of user interface design for health information systems, medical devices, consumer health web sites, and other healthcare related systems. Students will have the opportunity to learn the fundamental principles of human---computer interaction and human factors and learn how to apply them to real world problems through class projects. The focus is on learning why user---friendly interfaces can greatly improve work productivity and enhance the quality of healthcare without radically changing the underlying technology.

HI 6311 Advanced Decision Analysis

3 semester credit hours /meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisites: Consent of instructor

This course will focus on decisions made with high degrees of uncertainty. The focus will be on modeling the decisions and the types of uncertainty that are present in the decision making process. The focus will be on developing ways to reduce the amount and types of uncertainty while still maintaining the key elements of the decision making process. In addition, the course will focus on ways to automate the decision making process in terms of the way in which data, information and knowledge is aggregated, the modeling of the decision data against existing standards or protocols, and presenting alternative display approaches to the understanding of the data, information and knowledge employed in the decision making process.

HI 6313 Scientific Writing in Health care

3 semester credit hours/meets part of research informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

This course provides the advanced skills necessary to write a full range of scientific manuscripts in health informatics. The course begins with the philosophy of science, types of scientific research, and types of scientific manuscripts (including review, applied, and research articles). The course then examines each component of a scientific manuscript in detail, including the title, abstract, introduction, literature review, method, discussion,

conclusion and appendices. The course covers the purpose of each of these components, discusses properties that distinguish good components from bad, and presents techniques for producing high-quality scientific writing. Students will apply these techniques by examining selected published papers, producing their own scientific writing, and critiquing the writing of others in the class. Students are expected to enter the class with a draft scientific paper that they have written and a high degree of general writing skills.

HI 6314 Knowledge Acquisition
3 semester credit hours/meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 6302

This course will focus on an understanding of the different forms of knowledge used in biomedical informatics. Based on the type of knowledge, where the knowledge is located, and how the knowledge is structured, the course will examine different methods to acquire that knowledge from the people and/or repositories that contain the knowledge. The course will examine strategies to validate that knowledge and to create a repository for it. A more detailed understanding of the repository can be found in HI 6302, Knowledge Modeling I.

HI 6315 Advanced Electronic Health Records
3 semester credit hours/meets part of advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3
Prerequisite: HI 5313 or consent of instructor

This course is designed to provide informatics students with an in-depth overview of the key concepts regarding implementation of a clinically-oriented information system (e.g., an electronic medical record, computer-based provider order entry, nursing 5). The course will strive to present “best practices” in cases which there is evidence to support such assertions. The course will rely heavily upon the published literature as well as the experience of the instructors.

HI 6322 Distributional Semantics: Methods and Biomedical Applications
3 semester credit hours/meets part of advanced informatics competencies

This course concerns computational methods that learn about the meaning of words and concepts from their distribution in natural language, and consequently are able to perform cognitive tasks in a human-like manner. For example, with the appropriate learning materials, these methods have shown performances comparable with English as a second language speakers on the Test of English as a Foreign Language synonym test. Applications in the biomedical domain include information retrieval, automated indexing of the biomedical literature, literature-based knowledge discovery and the analysis of biological sequences. This course will explore the underlying theories and various methodological approaches used to measure semantic relatedness (the extent to which the meaning of two terms is related), as well as their application in biomedical and other domains. The course will provide hands-on instruction so that students will emerge with the ability to apply the methods taught in the class in their own research.

HI 6323 Data Mining in Biomedical informatics
3 semester credit hours/meets part of the advanced informatics competencies
Lecture contact hours: 2; Lab contact hours: 3

Recent advances in genomic technologies, especially the microarray/gene chips technology, enable biologists to generate large amount of complex data. To explore the meaning of the data, one needs sophisticated data mining algorithms and tools. This course is intended to explore different problems and methods in bioinformatics with a focus on the computational and data mining methods for complex data, such as microarray data. A set of basic computational methods and models for analyzing genomic and structural biological data from high throughput technologies will be introduced. Students will be required to complete small projects on some of the methods.

HI 6324 Health Information Technology Policy
3 semester credit hours /meets part of the advanced informatics competencies
Prerequisite: Consent of instructor

This course will examine policy issues related to the use of information technologies in health care. It will examine key policies and policy issues in three areas: clinical informatics, consumer informatics and population health informatics. The primary focus will be on the United States, but international approaches will also be discussed.

HI 6328 Health Care Delivery in an EHR-Enabled Environment
3 semester credit hours/meets part of the advanced informatics competencies
Prerequisite: HI 5300

This course will expose doctoral students to an interdisciplinary research area that aims to explore the challenges of improving health care delivery and reducing costs in an EHR-enabled environment. Students will work with a large-scale claims dataset, examining the impact of this detailed data upon health care quality and reimbursement models. Specific topics may include but are not limited to chronic care management, health care coordination, patient life cycle management, system dynamics, accountable care organizations and population health management.

HI 6330 Biomedical Natural Language Processing
3 semester credit hours/meets part of advanced informatics competencies

This course will examine current natural language processing (NLP) methods and their applications in the biomedical domain. It will provide a systematic introduction to basic knowledge and methods used in NLP research and hands-on experience with existing biomedical NLP systems. Students will gain knowledge and skills in various NLP tasks such as named entity recognition, information extraction, and information retrieval.

HI 6340 Health Information Visualization & Visual Analytics
3 semester credit hours/meets part of research informatics competencies

This course introduces the basics of information visualization, which is the use of interactive visual representations of data to amplify human cognition. Properly constructed visualizations allow us to analyze data by exploring it from different perspectives and using the power of our visual system to quickly reveal patterns and relationships. This course uses practical, hands-on examples and exercises to teach the theory and application of information

visualization for health data. The class emphasizes visual analysis of time-series data, ranking and part-to-whole relations, deviations, distributions, correlations, multivariate, and geographic data. You will also learn how to combine multiple visualizations into interactive dashboards and how to use Tableau, a state-of-the-art information visualization tool to produce and deliver visualizations and dashboards quickly and easily.

HI 7000 Advanced Preceptorship
1-9 semester credit hours (variable hours/week)
Required for doctoral students
Prerequisite: Admission to the doctoral program

The student will use this course to develop a research proposal that will be used as a basis for their doctoral dissertation. The student must complete nine semester credit hours with the supervision of the mentor or primary advisor. The result will be used to prepare for the advance to candidacy exam.

HI 7050 Research in Health Informatics
1-21 semester credit hours (variable hours/week)
Required for doctoral students
Prerequisite: Advance to candidacy exam successfully completed

The doctoral candidate must complete 21 hours of research in health informatics. The mentor or primary advisor will supervise the advancement of the candidate's progress.

HI 7150 Research Seminar
1 semester credit hour
Lecture contact hours: 1
Required for doctoral students; must be repeated for 3 hours to meet the degree requirement.

This course involves the weekly research seminars in which both invited speakers and students present their work to an audience of SBMI affiliates. Students participating in the course for credit are required to both give a seminar presentation, attend at least 80% of the weekly seminars, and fill out evaluation forms (available online). Each student seminar must be supervised by a faculty member (not necessarily the student's advisor). The faculty member will work with students to ensure that the seminars are both appropriate and interesting for the audience.

HI 7301 Grant Writing
3 semester credit hours/meets part of research informatics competencies
Required for doctoral students

Students will develop skills in the planning and execution of grant development. The focus will be on NIH and NSF grants forms, but students will also be exposed to grant applications from private organizations. The goal of the course is to enable students to develop a draft that can be used for the funding of dissertation work or to develop a grant that would allow students to continue their dissertation work in a post-dissertation award. Students will learn how to write the narrative, project time lines, include appropriate evaluation and draft budgets.

HI 9999 Dissertation in Health Informatics
1-9 semester credit hours (variable hours)

Required for doctoral students; may be repeated for 9 hours to meet the degree requirement
Prerequisite: Advance to candidacy exam successfully completed

The post-candidacy doctoral student will use this course to write their doctoral dissertation under the supervision of their primary mentor, and in collaboration with their advisory committee. This course may be repeated for at least 9 hours to meet the degree requirement.

Graduate Faculty

Elmer V. Bernstam, MD, MSE, MS
Professor

Dr. Bernstam holds the joint appointment of professor at UTHealth School of Biomedical Informatics (SBMI), where he also serves as Associate Dean for Research, and at UTHealth Medical School. Bernstam is also the Director of the Biomedical Informatics Group at UTHealth's Center for Clinical and Translational Sciences (CCTS). His lab at CCTS created and maintains the UTHealth clinical data warehouse, which contains health data for over 400,000 patients. Bernstam is board-certified in internal medicine and continues to practice. His research focuses on clinical and translational informatics, specifically on information retrieval, consumer informatics and clinical decision support. He is a fellow of the American College of Physicians and the American College of Medical Informatics. In 2004, Bernstam received the John P. McGovern Outstanding Teacher Award, as voted by the SBMI student body. Bernstam completed a National Library of Medicine fellowship at Stanford Medical Informatics.

Education

- MS, 2001, Biomedical Informatics, Stanford University Medical Center
- MSE, 1999, Computer Science and Engineering, University of Michigan College of Engineering
- MD, 1995, Integrated Medical-Premedical (INTEFLEX) program, University of Michigan Medical School
- BSE, 1992, Computer Engineering, University of Michigan College of Engineering
- BS, 1992, Biomedical Sciences and Psychology, University of Michigan College of Literature, Science and the Arts

For more information, contact Dr. Bernstam at: Elmer.V.Bernstam@uth.tmc.edu

Juliana Brixey, PhD, RN
Associate Professor of Health Informatics

Juliana Brixey, PhD, MPH, RN, associate professor of biomedical informatics and nursing at UTHealth, has 30 years of professional experience as a nurse in nursing management and direct patient care, working in general and vascular surgery, in the recovery room and on a renal diabetes unit as a head nurse, administrator on duty, pheresis nurse, assistant head nurse and staff nurse. Her research interests include patient safety, interruptions in workflow and social media in distance education. Brixey was instrumental in creating the applied health informatics graduate program at UTHealth School of Biomedical Informatics and previously served as the director of the program. Brixey became the director of inter-professional education at SBMI in November 2013, and her role with the applied master's program was taken over by the Office of Academic Affairs. Brixey has received awards for her role as an educator, a nurse and an informatician including the 2012 John P. McGovern Teaching Award. The award is given by SBMI students to the professor who they believe best supports student independent thought, develops student confidence in their area of study, and stimulates students' quest for knowledge and professional development. She also was honored by the Texas Nursing Association District Nine as one of the 20 outstanding nurses of 2012 at the 22nd annual nursing celebration.

Education

- PhD, 2006, Health Informatics, The University of Texas Health Science Center at Houston, School of Health Informatics Sciences
- MPH, 2000, Health Service Organization Track, The University of Texas Health Science Center at Houston, School of Public Health
- MSN, 1995, Nursing, The University of Texas Medical Branch at Galveston
- BSN, 1992, Nursing, The University of Texas Medical Branch at Galveston

- AD, 1978, Nursing, Missouri Southern State College
- BS, 1974, Biology, Missouri Southern State College

For more information, contact Dr. Brixey at: Juliana.J.Brixey@uth.tmc.edu

Trevor Cohen, MBChB, PhD
Associate Professor

A native of South Africa, Dr. Cohen practiced medicine in a rural hospital setting in his home country. When dealing with patients with mental illness or behavioral issues, Cohen often found that essential patient information was not available when needed. This issue, along with a longstanding interest in computer technology, led Cohen to leave medicine and pursue a new career in informatics. Cohen's research interests focus on distributional semantics, which involves using computers learn how things are related from electronic text. He is also interested in the thought processes of clinicians that relate to the commission of, and recovery from, medical errors. Cohen works in the SBMI facility for the National Center for Cognitive Informatics and Decision Making in Health Care. He joined the SBMI in 2009, after teaching at Arizona State University.

Education

- PhD, 2007, Columbia University
- MBChB, 1999, University of Cape Town, South Africa

For more information, contact Dr. Cohen at: Trevor.Cohen@uth.tmc.edu

Susan Fenton, PhD, RHIA, FAHIMA
Associate Professor of Health Informatics

Susan Fenton, PhD, RHIA, FAHIMA, joined UTHealth School of Biomedical Informatics (SBMI) on June 1, 2013 as an assistant professor of biomedical informatics. She came to SBMI from Texas State University in San Marcos, where she was an assistant professor and co-director of the Institute for Health Information Technology. In November 2013, Fenton transitioned into the role of assistant dean for academic affairs, taking over the management responsibilities for the Office of Academic Affairs and helping the school acquire health informatics and information management education accreditation from CAHIIM for the applied health informatics program. Fenton's research interests include workforce development, data management, ICD-10 implementation and health care associated infections. Her interest in workforce development was limited to health IT professionals, but she sees a need to develop new methods for healthcare professionals to learn how to use information technology effectively. Her work with the ICD-10 is limited because her research is focused on various impacts related to its implementation, which will no longer be relevant in a few years after implementation is complete. As for health care associated infections, Fenton has a new project working with an industrial engineer who identifies failure points that result in HAIs. After the failure points are identified, they will determine the impact of the failure points on EHRs and documentation.

Education

- PhD, Health Services Research, 2007, Texas A&M University
- MBA, Business Administration, 1990, The University of Houston
- BS, Health Information Management, 1987, The University of Texas Medical Branch

For more information, contact Dr. Fenton at: Susan.H.Fenton@uth.tmc.edu

Amy Franklin, PhD, MS
Assistant Professor

Dr. Franklin came to SBMI in 2009 after teaching in the Cognitive Science Department at Rice University. She is interested in how cognition and communication interact and impact each other and how this plays out in a medical context. This has led Franklin to studying decision making in the emergency department, the use of electronic health records, and how people and computers interact in the health care field. She is also interested in research related to patient safety, usability and communication. Franklin teaches courses in cognitive engineering, computer-supported collaborative work, research methods and information and knowledge representation.

Education

- PhD, Psychology and Linguistics, 2007, University of Chicago
- MS, Psychology and Linguistics, 2007, University of Chicago

For more information, contact Dr. Franklin at: Amy.Franklin@uth.tmc.edu

Lex Frieden, MA, LLD (hon)
Professor of Health Informatics

Lex Frieden, MA, LLD (hon) is a professor at UTHealth School of Biomedical Informatics and directs the Independent Living Research Utilization program at The Institute for Rehabilitation and Research (TIRR) at Memorial Hermann. Best known for his contributions to the landmark Americans with Disabilities Act of 1990, Frieden suffered a spinal cord injury while in college and has used a wheelchair for more than 40 years. In March 2013, Frieden received a 2013 Henry Viscardi Achievement Award, which honors the accomplishments of people with disabilities on a global basis. Frieden has received two appointments as the University of Texas System Chancellor's Health Fellow for Disabilities. In 1974, he completed a one-year teaching fellowship in psychology at the University of Houston, and in 1972, he completed a two-year research internship in rehabilitation at Baylor College of Medicine.

Education

- LLD (hon), 2004, Human Rights, The University of Ireland
- Certificate, 1980, Organizational Psychology, Cornell University
- MA, 1979, Social Psychology, The University of Houston
- BS, 1971, Psychology, The University of Tulsa

For more information, contact Mr. Frieden at: Lex.Frieden@uth.tmc.edu

Yang Gong, MD, PhD
Associate Professor

Yang Gong, Ph.D. is an associate professor at the UTHealth School of Biomedical Informatics and a graduate of the SBMI Health Informatics doctorate program. Gong also has a background in medicine and received his medical training in China. Gong has a disciplinary background and core interest in human factors, human-centered computing, patient safety information system, clinical communication and clinical decision support. Gong has published and presented at national/international conferences, including AMIA, Medinfo, AHIMA, HIMSSasia, HIMSS, HCI International etc.

Education

- PhD, Health Informatics, 2013, University of Texas Health Science Center at Houston
- MS, Medical Informatics, 1997, Peking Union Medical College

- MD, 1992, China Medical University

For more information, contact Dr. Gong at: Yang.Gong@uth.tmc.edu

Jonathan Ishee, JD, MPH, MS, LLM
Assistant Professor of Health Informatics

Education

- LLM in Health Law, 2009, University of Houston Law Center
- JD, 2005, Tulane University Law School
- MPH, 2004, University of Texas Health Science Center at Houston (Management and Policy)
- MS, 2003, University of Texas Health Science Center at Houston (Health Informatics)
- BSM, 2001, Tulane University A.B. Freeman School of Business

For more information, contact Mr. Ishee at: Jonathan.M.Ishee@uth.tmc.edu

M. Sriram Iyengar, PhD
Associate Professor

Dr. Iyengar has focused his research in bio---medical informatics Research & Development including mathematical/statistical modeling, algorithms, and software development across diverse areas such as biochemistry, immunohematology, endocrinology, oncology, orthopedics, neural imaging, and clinical trials. He has extensive software development experience, most recently with Palm OS and web technologies.

Education

- BTech, Electrical Engineering, The Indian Institute of Technology, Madras
- MSc, Electrical Communication Engineering (Information and Communication Theory), The Indian Institute of Science, Bangalore
- MS, Statistics, The Ohio State University
- PhD, Computer Science (Distributed Computing and Artificial Intelligence), The Ohio State University

For more information, contact Dr. Iyengar at: M.Sriram.Iyengar@uth.tmc.edu

Craig W. Johnson, PhD
Associate Professor

Dr. Johnson has been at The University of Texas Health Science Center at Houston since 1983. Dr. Johnson's Ph.D. is in educational psychology with specialization in research, statistics and human learning. Dr. Johnson has taught or advised hundreds of faculty and graduate students in design, development, implementation, analysis, interpretation and publication of education and health oriented research and evaluation studies. While at The University of Texas Health Science Center at Houston, Dr. Johnson has presented or published numerous scholarly papers concerning effective use of computers in education and research (e.g., Hypertutor Therapy for Interactive Instruction, Microcomputer-administered Research: What it means for Educational Researchers, Microcomputer as Teacher/Researcher in a Nontraditional Setting, "Randomized Comparisons Among Health Informatics Students Identify Hypertutorial Features as Improving Web-Based Instruction"). He authored the computer game BlockAIDS - The AIDS Education Game. More recently, Dr. Johnson has become a recognized expert in the area of Web-based courseware research and development. He has developed a theoretical framework for the design of Web-based

instruction (WBI) called the HyperTutor Model. Dr Johnson's chief research efforts have focused on the production and evaluation of superior Web-based interdisciplinary learning environments while implementing evidence-based teaching (EBT) randomized control methodologies to evaluate WBI effects in the field. This research not only "bridges the gap", but integrates randomized teaching and learning research with teaching practice, maximizing internal and external validity, while providing a model for WBI research in diverse health, science, mathematics, engineering and technology learning environments. Dr. Johnson is a winner of The University of Texas Health Science Center at Houston/School of Health Information Sciences Outstanding Teacher Award and of the John P. McGovern Outstanding Teacher Award.

Education

- PhD, 1978, University of Nebraska (Ed Psych-Learning, Statistics, Research Des.)
- MA, 1973 University of Nebraska (Special Ed. for the Emotionally Disturbed)
- BS, 1967 University of Nebraska (Mathematics; Psychology)
- BA, 1966 University of Nebraska (Philosophy)

For more information, contact Dr. Johnson at: Craig.W.Johnson@uth.tmc.edu

Todd Johnson, PhD
Professor

Todd R. Johnson, PhD, is a professor of biomedical informatics at UTHealth School of Biomedical Informatics (SBMI). Johnson's efforts at SBMI are focused on the application of informatics in clinical settings, including quality and safety dashboards, visual analytics, clinical research informatics and big data for health care. His research uses cognitive science, computer science and human factors engineering to solve biomedical informatics problems. In 1991, Johnson received his PhD in artificial intelligence from The Ohio State University, after which, he continued his research at Ohio State as an associate professor in the Department of Pathology's Laboratory for Knowledge Based Medical Systems. In 1998, Johnson came to SBMI as one of the founding faculty members and served for three years as the associate dean for academic affairs. Johnson left SBMI to join the faculty at the University of Kentucky in 2010, where he developed a new academic division of biomedical informatics and led the effort to transform clinical and translational science through the use of new digital methodologies. He rejoined the SBMI faculty as a professor on Nov. 1, 2013.

Education

- PhD, 1991, Artificial Intelligence with minors in cognitive science and the theory of computation, The Ohio State University
- MS, 1986, Computer and Information Science, The Ohio State University
- BS, 1984, Computer and Information Science, The Ohio State University

For more information, contact Dr. Johnson at: Todd.R.Johnson@uth.tmc.edu

Peter Killoran, MD, MS
Assistant Professor of Health Informatics

Peter Killoran, MS, MD, holds a dual faculty appointment at The University of Texas Health Science Center at Houston (UTHealth), serving as an assistant professor of biomedical informatics at UTHealth School of Biomedical Informatics and an assistant professor of anesthesiology at UTHealth Medical School. At SBMI, Killoran works to improve health care quality and safety through Health IT and biomedical informatics with the goal of achieving a positive impact on clinical decision making and ultimately, patient outcomes. Killoran works on the SHARPC project and collaborates on

HIT and informatics projects with the Memorial Hermann Healthcare System. With his joint appointment, Killoran utilizes his skills as a clinician-informatician. He has implemented several protocols at other institutions that merge these two roles. As an active member of the Memorial Hermann Hospital Medical Informatics Committee, he championed the adoption of an electronic anesthesia information management system across the entire Memorial Hermann Hospital System. Additionally, he is on the eDocumentation Editorial Committee, which has been charged with the task of transitioning all clinical documentation from paper to an electronic format. Killoran believes that there is a tremendous need and opportunity for informatics expertise and data-driven techniques to improve the quality and safety of patient care.

Education

- MD, 2007, Medicine, Dartmouth Medical School
- MS, 2000, Geography, University of Oregon
- BS, 1993, Geology and Biology, Brown University

For more information, contact Dr. Killoran at: Peter.V.Killoran@uth.tmc.edu

James Langabeer, II, PHD, MBA, FHIMSS
Professor

James Langabeer II, PhD, MBA, FHIMSS, joined UTHealth School of Biomedical Informatics (SBMI) on March 15, 2014 as a professor of biomedical informatics. He has a dual appointment with SBMI and UTHealth Medical School's Department of Emergency Medicine. He has spent most of his career focused on quality improvement in health care delivery. His research interests are in clinical systems of care, cardiovascular quality and analytics, and health information exchange with a passion for the intersection of health informatics, decision sciences and medicine. His career has involved hospital executive administration, technology startups and commercialization, management consulting, and health care research and teaching. Langabeer was the founding Chief Executive Officer of Greater Houston Healthconnect and has also served on the faculty of The University of Texas School of Public Health at Houston, Boston University and Baylor College of Medicine. Langabeer earned his PhD in decision sciences from the University of Lancaster (England) School of Business, a Doctor of Education in leadership from the University of Houston and an MBA from Baylor University. He is also an Emergency Medical Technician with Advanced Cardiac Life Support certifications, a Certified Management Accountant and a Fellow in the Healthcare Information and Management Systems Society.

Education

- PhD, Operations Research, The University of Lancaster School of Management
- Doctor of Education, Leadership and Administration, The University of Houston
- MBA, Information Systems Management, Baylor University

For more information, contact Dr. Langabeer at: James.R.Langabeer@uth.tmc.edu

Shaiti Myneni, PhD, MSE
Assistant Professor

Sahiti Myneni, PhD, MSE, joined UTHealth School of Biomedical Informatics (SBMI) on March 1, 2014 as an assistant professor of biomedical informatics. In 2009, Myneni came to SBMI as a research fellow and later started her PhD in health informatics, which she completed in the fall of 2013. Her research interests include consumer informatics, health-related social media analytics, data-driven digital health technologies and idea to product translation (mHealth

device development and testing). Myneni's current research focuses on health-related online social network analysis that builds on qualitative, automated and quantitative methods, which enables the development of novel, informatics-driven solutions in the domains of consumer and population health. In the future, she plans to extend her methodological application to other areas such as substance abuse, chronic disease management and cancer survivorship research. On the applications front, she will be developing, testing and implementing tailored behavioral interventions using advances in mHealth and persuasive computing.

Education

- PhD, Health Informatics, 2013, University of Texas Health Science Center at Houston
- MSE, Electrical Engineering, 2009, Arizona State University
- BE, Electronics and Communications Engineering, 2007, Osmania University

For more information, contact Dr. Myneni at: Shaiti.Myneni@uth.tmc.edu

Dean Sittig, PhD
Professor

Dean F. Sittig, PhD, is a professor at UTHealth School of Biomedical Informatics (SBMI). He currently serves on the American Medical Informatics Association board of directors and is a member of the UT-Memorial Hermann Center for Healthcare Quality & Safety. Additionally, Sittig is the lead investigator of the clinical summarization project within the Office of the National Coordinator's Strategic Health IT Advanced Research Project at SBMI and the ONC funded SAFER: Safety Assurance Factors for EHR Resilience. Sittig's research interests center on the design, development, implementation and evaluation of all aspects of clinical information systems (CIS), specifically measuring the impact of CIS on a large scale and improving understanding of both the factors that lead to the success of CIS as well as the unintended consequences associated with computer-based clinical decision support and provider order entry systems. He is particularly interested in ensuring the safe and effective use of technology in the clinical setting, using advanced clinical decision support interventions to improve the quality of care and patient safety while reducing the costs of healthcare and designing and developing the clinical knowledge required to create these advanced clinical decision support interventions. In 1992, he was elected as a fellow in The American College of Medical Informatics, and in 2009, he won the John P. McGovern Outstanding Teacher Award as voted by the SBMI student body. Sittig has co-authored an extensive collection of books and has won the Health Information Management and Systems Society Book of the Year Award thrice.

Education

- PhD, 1988, Medical Informatics, University of Utah
- MS, 1984, Biomedical Engineering, The Pennsylvania State University
- BS, 1982, Science, The Pennsylvania State University

For more information, contact Dr. Sittig at: Dean.F.Sittig@uth.tmc.edu

Kimberly Smith, PhD, MT (ASCP)
Assistant Professor of Health Informatics

Dr. Smith holds a PhD in Health Informatics from the University of Texas Health Science Center at Houston's School of Biomedical Informatics. She also holds a BS in Microbiology from Eastern Kentucky University, and is also a medical technologist (medical laboratory scientist). Before entering graduate school, she obtained over 15 years of experience implementing, supporting, and managing information systems. She implemented systems for both St. Luke's Episcopal

Hospital and MD Anderson Cancer Center, and also worked in numerous capacities for several HIT vendors. After graduating from SBMI with her PhD, she joined The University of Texas at Austin's post-baccalaureate Health IT certificate program, where she taught, advised, and mentored over 550 students. She taught the applied electronic health records course as well as the technical half of the Fundamentals of Health IT course, covering topics such as HL7, databases, digital vs. analog data, Boolean logic, and basic SQL queries. In addition to her teaching responsibilities there, she supported the 30-machine computer lab; mentored student poster projects; reviewed resumes; provided academic counseling; and participated in employer outreach sessions. She also taught BIO337 Introduction to Health Informatics each spring, which is a broad overview of biomedical informatics.

Education

- PhD, Health Informatics, 2010, The University of Texas Health Science Center at Houston
- MS, Health Informatics, 2005, The University of Texas Health Science Center at Houston
- MT, St. Luke's Episcopal Hospital, 1983, Texas Medical Center, Houston TX
- BS, Microbiology, 1981, Eastern Kentucky University

For more information, contact Dr. Smith at: Kimberly.A.Smith@uth.tmc.edu

Jingchun Sun, PhD
Assistant Professor of Health Informatics

Jingchun Sun, PhD, joined the faculty at UTHealth School of Biomedical Informatics on July 1, 2013 as an assistant professor of biomedical informatics. She came to SBMI from the Department of Biomedical Informatics at the Vanderbilt University School of Medicine, where she worked as a research assistant professor. Sun's research interests include bioinformatics, systems biology, network pharmacology, biological data integration and mining, and biological network reconstruction and mining. Sun is currently working on research projects related to network pharmacology, which includes drugs used to treat cancer, psychiatric disorder and addiction. Her future research will continue along those lines with an integration of clinical data mining for identifying critical molecules for drug treatment. Sun is working specifically on the grant "Repurposing Existing Drugs for Cancer Treatment using Electronic Health Records" under principal investigator and SBMI associate professor Hua Xu, PhD.

Education

- PhD, 2005, Biochemistry & Molecular Biology, Shanghai Jiao Tong University, Shanghai, China
- MS, 2001, Fisheries Genetics, Shanghai Fisheries University, Shanghai, China
- BS, 1995, Fisheries Biology, Southwest Agricultural University, Chongqing, China

For more information, contact Dr. Sun at: Jingchun.Sun@uth.tmc.edu

Cui Tao, PhD
Assistant Professor

Cui Tao, PhD, joined the SBMI faculty on July 22, 2013 as an assistant professor of biomedical informatics. She came to SBMI from the Division of Biomedical Statistics and Informatics at Mayo Clinic. Tao's background is in clinical informatics and computer science, and her research interests include ontologies, standard terminologies, semantic web, information extraction and integration as well as applying ontology and semantic web technologies to clinical and translational studies. Tao is currently involved in several federally funded research projects including projects that she's leading. These projects focus on temporal-relation modeling, extraction and reasoning; secondary use of electronic health record data for clinical and translational studies; ontology-based analysis for cancer drug repurposing; vaccine adverse event analysis; and ontology-based personalized decision support systems. Tao is the

principal investigator of the Clinical Narrative Temporal Relation Ontology (CNTRO) project, in which she leverages ontology and semantic web technologies to model, extract and infer temporal relations from clinical data. She's also leading the research efforts on common ontology guidelines for semantic representations, which is funded by NIH through the National Center of Biomedical Ontologies. Additionally, she is applying semantic web technologies on normalized electronic data for clinical decision support, which is funded by the Office of the National Coordinator for Health IT through the Strategic Health IT Advanced Research Projects (SHARP) program.

Education

- PhD, 2008, Computer Science, Brigham Young University
- MS, 2004, Computer Science, Brigham Young University
- BS, 1997, Biology and Computer Science, Beijing Normal University

For more information, contact Dr. Tao at: Cui.Tao@uth.tmc.edu

Robert W. Vogler, PhD, MEd
Associate Professor of Health Informatics

Dr. Vogler has a nursing background and has taught, held administrative positions and served as a school of nursing chief information officer and executive director of an information and educational technology center that provided information services and educational support. He has served on university level information, technology and educational committees, been involved at the university level for HIPPA, compliance, security, course management software and distance technology issues. He has participated in oversight of information technology, served on distance education committees and in university building programs. His recent research interests include blood pressure reactivity and un---witnessed patient falls. He has published journal articles, book chapters and has numerous presentations. His dissertation research focused on quality of care for terminally ill hospitalized patients.

Education

- Postdoctoral Studies: University of Texas Health Science Center at Houston, 1999
- PhD in Nursing, 1984, University of Alabama, Birmingham
- MSN., 1978, Medical College of Georgia
- MEd, 1972, University of North Texas
- BSN, 1966, Seattle University

For more information, contact Dr. Vogler at: Robert.W.Vogler@uth.tmc.edu

Hua Xu, PhD
Associate Professor

Hua Xu, PhD, is an associate professor at UTHealth School of Biomedical Informatics. He directs the Center for Computational Biomedicine at UTHealth. Currently, he is the Chair of American Medical Informatics Association natural language processing working group. In 2008, Xu received his Doctor of Philosophy in biomedical informatics from Columbia University. In addition, he holds a Bachelor of Science in biochemistry from Nanjing University in China and a Master of Science in computer science from New Jersey Institute of Technology. Xu is an expert in biomedical text processing and data mining. His primary research interests include: 1) natural language processing of clinical text; 2) text mining of biomedical literature; and 3) health care data mining. He is the author of many publications on biomedical NLP and text mining, and his research on medication extraction received the Homer Warner Award from AMIA in 2009. Xu has been principal investigator on a number of grants, including R01s from The National Library of Medicine and The National Cancer Institute.

Education

- PhD, Biomedical Informatics, 2008, Columbia University
- MPhil, Biomedical Informatics, 2007, Columbia University
- MS, Computer Science, 2001, New Jersey Institute of Technology
- BS, Biochemistry, 1998, Nanjing University, Nanjing, P.R. China

For more information, contact Dr. Xu at: Hua.Xu@uth.tmc.edu

Jiajie Zhang, PhD
Dean and Professor

Jiajie Zhang, PhD, is the dean and Dr. Doris L. Ross Professor at UTHealth School of Biomedical Informatics (SBMI). Zhang has spent the past two decades conducting research in biomedical informatics, cognitive science, human-centered computing, decision making and information visualization. He has served as the principal investigator (PI) or co-PI on more than two dozen grants from diverse federal, state and private agencies. Most recently, Zhang has been the PI of a $15 million grant awarded to establish the National Center for Cognitive Informatics and Decision Making in Healthcare (NCCD) under the aegis of the Office of the Nation Coordinator's Strategic Health IT Advanced Research Projects program for patient-centered cognitive support. As an educator, he has taught courses in human-computer interaction, EHR usability, information visualization and technology-mediated social dynamics. Zhang has supervised or co-supervised nearly twenty PhD students and seventy master's students. During his tenure as the associate dean for research from 2002 to 2012, he helped the school rapidly increase its research funding and expenditures. Zhang has been instrumental in establishing several research centers at SBMI, including the aforementioned NCCD. In 2003, he was inducted as a fellow to the American College of Medical Informatics, and in 2002, he received the John P. McGovern Outstanding Teacher Award as voted by SBMI students. Zhang has written in excess of 150 publications and presented at hundreds of organizations, academic institutions and conferences.

Education

- PhD, 1992, University of California, San Diego (Department of Cognitive Science)
- MS, 1991, University of California, San Diego (Department of Cognitive Science)
- BS, 1983, University of Science & Technology of China (Department of Biological Sciences)

For more information, contact Dr. Zhang at: Jiajie.Zhang@uth.tmc.edu

W. Jim Zheng, PhD
Associate Professor

Education

- MS, Computer Science, 2000, University of Texas at Dallas
- PhD, Biochemistry & Molecular Biology, 1997 University of Texas Southwestern Medical Center at Dallas
- MS, Biophysics, 1986, Wuhan University, Wuhan, China
- BS, Virology & Molecular Biology, 1986 Wuhan University, Wuhan, China

For more information, contact Dr. Zheng at: Wenjin.J.Zheng@uth.tmc.edu

Min Zhu, MD, PhD, MS
Assistant Professor of Health Informatics

Min Zhu, MD, PhD, MS is a 2010 doctoral graduate of the UTHealth School of Biomedical Informatics (SBMI) and currently on the faculty as an assistant professor and serves as the program manager of research. Zhu's faculty appointment began on July 16, 2014. Prior to arriving in Houston in 2005 to begin his doctorate program at SBMI, Zhu worked in China as a Health IT software engineer and studied medical informatics at Erasmus University Rotterdam in The Netherlands. Because of his educational background in medicine, Zhu also interned at Zhongda Hospital at Southeast University in China, where he earned his bachelor's degree. During his tenure at SBMI, Zhu has been a doctorate recipient, graduate research assistant, and research scientist.

Education

- PhD, Health Informatics, 2010, University of Texas School of Biomedical Informatics at Houston
- MS, Medical Informatics, 2004, Erasmus University Rotterdam, The Netherlands
- MBBS, (US Equivalent of Doctor of Medicine) Southeast University, China

For more information, contact Dr. Zhu at: Min.Zhu@uth.tmc.edu