**HI5311 Introduction to Biomedical Informatics**

Fall Semester, year 2015
3 Semester Credit hours

**Course Description**

Foundations of Health Informatics II follows Foundation of Health Informatics I as the second in a series of two “core” biomedical informatics courses. In contrast to Foundations I, this course is intended for students who will focus their career on some aspect of biomedical informatics or related disciplines. Whenever possible, assignments will leverage systems and/or datasets that are practically significant (e.g., PubMed, publicly available clinical datasets). Thus, the course will help students develop practical skills.

**Learning Objectives**

Upon successfully completing this course, students will be able to:

* Represent biomedical data geometrically, probabilistically and as sequence state models.
* Explain the advantages and disadvantages of different representational approaches.
* Use open source software to process and analyze biomedical data

**Prerequisite/Co-requisite**

* Foundations I

       Basic programming skills (Data Structures and Algorithms or equivalent)

       Math and probability through first-semester college calculus

 OR Approval of coordinator

**Textbook**

***Required Readings***

* Bernstam, E.V., J.W. Smith, and T.R. Johnson, *What is biomedical informatics?* J Biomed Inform, 2010. **43**(1): p. 104-10.
* Patel, V.L., J.F. Arocha, and D.R. Kaufman, *A primer on aspects of cognition for medical informatics.* J Am Med Inform Assoc, 2001.**8**(4): p. 324-43.
* Hripcsak, G. and D.F. Heitjan, *Measuring agreement in medical informatics reliability studies.* J Biomed Inform, 2002. **35**(2): p. 99-110.
* Hripcsak, G. and A. Wilcox, *Reference standards, judges, and comparison subjects: roles for experts in evaluating system performance.* J Am Med Inform Assoc, 2002. **9**(1): p. 1-15.

***Recommended Readings***

* Cohen, T. Widdows, D. Geometric Representations in Biomedical Informatics. Applications in Automated Text Analysis. Sarkar, N. (Ed .) Methods in Biomedical Informatics, a Pragmatic Approach. Elsevier. 2013.

**Instructor Information**

**Name Trevor Cohen**

Associate Professor

Office location: UCT, suite 165
E-mail: trevor.cohen@uth.tmc.edu

Office phone: 486-3675
Other contact information

**Office Hours: by appointment**

*Graduate Teaching Assistant*

**Name: TBD**
Office location
E-mail:
Tel:

**Office Hours:**

**Method of Instruction**

This online course is broken down into weekly/topical instructional units. Every week, a new instructional unit will be presented, with each unit containing a combination of the following elements:

* Lecture material
* Labs, which can be completed in class or remotely

The class is a “hybrid” class, which is to say that recordings of all of the lectures are available for viewing offline and asynchronously, and that students will be taking the class both in person and online.

Every student is required to meet the school’s computer requirements. **A laptop will be**

**required for the weekly in-class labs**, if these are to be attempted in class.

You will also need a regular calculator with arithmetic functions. (Because of the way

Moodle handles the quizzes and exams - a real calculator on your desk is necessary.

Switching windows to access computer may throw you out of your attempt.

The instructional materials and activities for this course reside in Moodle, a Learning Management System (LMS).

The activities for each week should take you about 6 to 9 hours depending on your study skills and previous experience with graduate education, technology, on-line learning and our learning management system, Moodle.  Dedicate at least 3 hours each week on the current assignment and 3 to 6 hours of work outside of the course each week.

It is expected that you will access the course on a regular basis. As the course progresses you will get a better sense for how frequently you need to access the course site to complete and submit the assignments and meet the course objectives.  Moodle monitors your access and activities in the course and the course instructor may contact you if you do not access and make reasonable progress in the course over a period of time.

Successful course completion requireshaving access to the current course resources and materials,reading the course materials, actively participating in learning activities such as discussions, group projects and completing all assignments, quizzes and exams. Completing all the assignments is required in order to receive a course grade.

The instructor will respond to student emails, monitor student progress and answer questions posted on the discussion forums, and send out weekly announcements or emails to the class.

It is your responsibility to check your UTH e-mail account regularly (at least weekly) to make sure you receive announcements and information sent out by your instructor and TA.

**Grading**

The following evaluation criterion will be used for determining your grade for this course. Letter grades will be assigned based on the percentage of total points received (e.g., 90-100% =A, 80-89%=B, 70-79%=C, <60=F, and I (Incomplete)). An Incomplete is given only when situations outside of the student’s control occur. School policy mandates that an Incomplete must be completed by the end of the following semester. An Incomplete that is not completed by the end of the next semester will turn into an F automatically.

Your final class grade will largely be based on the results of all the assignments and activities (e.g., online discussions, quizzes, and completion of course project) that are designed to reflect your understanding of the course content. Finishing all the assigned readings, assignments, and activities **on time** will help you to achieve the objectives for this course. Late submissions will incur penalties and affect your final grade.

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| **Requirements** | **Percentage of Total Points** |
| Laboratory assignments | 20% |
| Completion of online quizzes | 20% |
| Midterm examinations | 30% (best 2 of 3) |
| Final examination | 30% |
| **Total** | **100%** |

**Student Feedback / Evaluation of Instruction**

At the end of the semester, you will be asked to fill out an online “Course and Instructor Evaluation” survey.

**Instructors do not receive the aggregated results until all grading is done and course grades are submitted.**

**Instructors do not have access to the identity of the survey participants when they view the survey results.**

Please take time to finish the evaluation survey since it is helpful to evaluate the instruction and provide for revisions of future course offerings.

Your feedback is encouraged throughout the course and is always welcomed.

**Technical Requirements and Support**

This course requires the use of a terminal server capable of X11 forwarding, in addition to the use of the online resources provided in Moodle, our learning management system. This can be accomplished with several software solutions, including the pre-installed terminal server on a Mac or Linux, or mobaxterm (<http://mobaxterm.mobatek.net/>) on Windows systems.

Please make sure that your computer meets the minimum [hardware and software requirements provided at this link](https://sbmi.uth.edu/current-students/student-handbook/computer-requirements.htm). Additional instructions may be provided in the course for accessing other technologies if needed.

Students must have the latest version of their operating system installed including latest security updates and service packs. SBMI recommends installing and using the following anti spyware, malware and virus control software:

* For real time protection:
	+ Microsoft Security Essentials

<http://www.microsoft.com/security/pc-security/microsoft-security-essentials.aspx>

* + BitDefender Antivirus Free Edition

<http://www.bitdefender.com/solutions/free.html>

* + AVG

<http://free.avg.com/>

* Other malware removal tools:
	+ Malwarebytes Anti-Malware

<https://www.malwarebytes.org/free/>

* + Panda Cloud Cleaner

<http://pandacloudcleaner.pandasecurity.com/>

Students are required to have access to the following for accessing course materials and to complete course activities:

* [Stable high-speed internet](https://sbmi.uth.edu/current-students/student-handbook/computer-requirements.htm)
* Personal computer

This course may also require:

* Webcam for proctoring of online quizzes and exams
* Headsets with microphones for voice chatting

In case of technical difficulties, inform the instructor and the TA. You can also direct any technology related questions to the Distance Education Team (de@uth.tmc.edu).

Currently, Distance Education Team is able to provide technical support only during business hours US Central Standard Time. Requests submitted after 5pm CST may take until the next business day to resolve. Please plan accordingly for time critical activities such as quizzes, exams, and submission dates for assignments.

In the online learning realm, trying to do things last minute is a sure way to fail and miss deadlines. It is your responsibility to allocate enough time to complete online course activities on time.

**Policies**

***Excused Absence on Holy Days***

Students who wish to observe a religious holy day that interferes with classes, examinations or completion of assignments, must inform the instructor of each class to be missed and/or of the planned absence(s) not later than the fifteenth day of the semester. The notification must be in writing and may either be delivered by the student personally to each instructor, with receipt of the notification acknowledged and dated by each instructor, or mailed by certified mail, return receipt requested, to each instructor. The full policy can be found at:
<http://www.uth.edu/hoop/policy.htm?id=1448072>

***Academic Honesty***

Academic honesty is the cornerstone of the academic integrity of a university. It is the foundation upon which the student builds personal integrity and establishes a standard of personal behavior. Because honesty and integrity are such important factors, you should be aware that failure to perform within the bounds of these ethical standards is sufficient grounds to receive a grade of "F" in this course and be recommended for suspension from the SBMI.

You should submit only your own work unless group work is indicated in your assignment. To demonstrate academic honesty, you should always indicate the use of works other than your own. Plagiarism is prohibited. Remember that most instances of plagiarism can be avoided by simply citing the source for the material that is used and thus indicating that it is not your original material. Plagiarism may include

* words or ideas taken from someone else without acknowledgment
* giving incorrect information about the source
* changing the sequence or structure but using ideas without citation
* not including material in quotes if directly taken from someone else’s material and/or copying amounts of other’s material and using it in violation of fair use copyright laws

With the advent of the Web and access to materials, the need to guard against using other’s material without acknowledgment is especially important. So, when in doubt, cite. Prevention is the best deterrent and thus avoids the academic consequences that may follow.

Per the [Exam and Written Paper Monitoring Policy](https://sbmi.uth.edu/current-students/student-handbook/exam-proctoring.htm), your submitted work may be subject to evaluation from [Turnitin](http://turnitin.com/) for plagiarism and some courses may require the use of [Proctorio](https://proctorio.com), an online proctoring software that will monitor and record you when you take online quizzes and exams.

Refer to the Student handbook [Student Conduct and Discipline](https://sbmi.uth.edu/current-students/student-handbook/student-conduct-and-discipline.htm) concerning plagiarism at <https://sbmi.uth.edu/current-students/student-handbook/unacceptable-conduct.htm>. More information regarding plagiarism and unacceptable conduct may be found at: [HOOP Student Conduct and Discipline](http://www.uth.edu/hoop/policy.htm?id=1448220) and <http://www.uth.edu/hoop/186-appendix-a.htm>. If you have questions or need additional information please let your instructor(s) know.

***Copyright Policy***

Information on copyright policy issues may be found at: [HOOP Classroom and Research use of Copyrighted Material](http://www.uth.edu/hoop/policy.htm?id=1447942).

***Intellectual Property***

Information on intellectual property issues may be found at: [HOOP Intellectual Property](http://www.uth.edu/hoop/policy.htm?id=1701961).

All materials presented in a course in Moodle are copyright protected unless otherwise noted.

***Course Accommodation***

Course accommodations are made in response to individual requests for accommodation. If you need accommodation please let your instructor(s) know. Information on disability issues may be found at: [HOOP Disability Accommodation](http://www.uth.edu/hoop/policy.htm?id=1447954).

If you believe you have a disability requiring an accommodation, please contact Dr. Susan Fenton, Associate Dean for Academic Affairs at (713) 500-3591 or by email at Susan.H.Fenton@uth.tmc.edu.

For additional information, contact Karla Crabtree, Director of Employee Relations and Equal Opportunity at (713) 500-3193, or by email at Karla.T.Crabtree@uth.tmc.edu.