Perspectives on Health and Medical Information Systems – RHIN-110 [ Fall 1 2017]

Course Syllabus

I. Course Information

1. Course Week

This course is offered via distance learning and course weeks run Wednesday through Tuesday.

2. Instructor Information

Contact
Name: Yoni Dvorkis
E-mail: yonidvorkis@brandeis.edu
Virtual Office Hours: By arrangement, please contact me if needed.

E-mail is the preferred and fastest way to reach me.

Profile
Yoni Dvorkis, MPH, CHDA is a Data Consultant with nine years of experience in health care, data analytics, information technology, and health informatics. He is a key member of the Department of Population Health at Atrius and is certified as a Health Data Analyst by the American Health Information Management Association. Yoni received his Master's in Public Health from the Harvard School of Public Health and his Bachelor of Arts in Mathematics with a minor in Economics from Tufts University.

3. Document Overview

This syllabus contains all relevant information about the course: its objectives and outcomes, the grading criteria, the texts and other materials of instruction, and weekly topics, outcomes, assignments, and due dates.

Consider this your roadmap for the course. Please read through the syllabus carefully and feel free to share any questions that you may have. Also, print a copy of this syllabus for reference. Any changes to the syllabus will be prominently posted in advance on LATTE.

4. Course Description

This course serves as an introductory course in the Health and Medical Informatics curriculum. The focus is on Health and Medical Informatics as a discipline and includes the coverage of major health care policies and standards that affect the health information industry, patient care systems (computerized patient records, delivery and monitoring systems), and modeling concepts and applications. Students will explore the impact of Information Technology on health care and analyze real applications of Health Informatics. Other topics include: healthcare system reform/accountable care, mobile health devices, telehealth and HIEs. This course also provides the opportunity for
students to explore their own interests in sub-specialties of Health Informatics through a research project that will be shared and reviewed by other students in the class at the end of the semester.

**Relevant Programs**
- MS in Health and Medical Informatics
- Please refer to [http://www.brandeis.edu/gps](http://www.brandeis.edu/gps) for other degree program options

**Prerequisites**
- None

5. **Materials of Instruction**

**Required Texts**

**Optional Texts**
- Any additional reading material will be posted on LATTE.

**Online Course Content**
This course will be conducted completely online using Brandeis’ LATTE site, available at [http://latte.brandeis.edu](http://latte.brandeis.edu). The site contains the course syllabus, assignments, discussion forums, links/resources to course-related professional organizations and sites, and weekly checklists, objectives, outcomes, topic notes, self-tests, and discussion questions. Access information is emailed to enrolled students before the start of the course. To begin participating in the course, review the Week 1 Checklist found in the Week 1 block.

6. **Overall Course Objectives**
Students interested in the Health Care field will be able to gain the fundamental understanding of Health Care Systems, from provider types to vocabularies to efficiencies, and how Information Technology affects the industry within the Health and Medical Informatics discipline. Through a group presentation, case study analysis, and a research project, students will be able to explore and gain perspectives on Health and Medical Informatics in the context of their own interest fields. Additionally, actual applications of IT in the Health and Medical Informatics domain, from clinical information systems to e-Health, will be analyzed.

**Course Goals and Outcomes**
At the end of this course students will be able to:
- Understand the fundamentals of health care systems including providers, payments, and spending.
- Be able to assess the impact of technology on health care and the role of health informatics in improving patient care, administration, and education.
- Describe computerized patient records, interoperability, and adoption issues.
- Identify the principles of health information technology including IT infrastructure.
- Discuss risks and privacy issues in introduction to health information security.
• Analyze various types of health information including data, vocabularies, and standards.
• Apply the use of clinical information systems and decision support systems to improve health care.
• Describe implementations of actual health informatics technologies.

7. Course Grading Criteria

Grading Components

<table>
<thead>
<tr>
<th>Percent</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 % (3% per week)</td>
<td>Discussions and Online Participation on LATTE:</td>
</tr>
<tr>
<td></td>
<td>Each week, respond to the 2 Discussion Questions by Saturday and post at least 2 Responses to each Discussion Question by Wednesday. See below for the minimum requirements.</td>
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<tr>
<td>20 % (5% per quiz)</td>
<td>Quiz Assessments:</td>
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<tr>
<td></td>
<td>Four (4) short “open book” Quizzes throughout the course to assess your understanding</td>
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<tr>
<td>10 %</td>
<td>Case Study Assignment #1</td>
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<tr>
<td>10 %</td>
<td>Group Presentation</td>
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<tr>
<td>15 %</td>
<td>Midterm Exam (Online timed exam on LATTE)</td>
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<tr>
<td>15 %</td>
<td>Final Research Project</td>
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Description of Assignments

1. **Discussions and Online Participation (30% of grade):**

Given the lack of a traditional classroom environment, all student participation will be done online via LATTE. Each week there will be 1 or more discussion topics that you must participate in. Discussion questions can be found in the each week’s discussion forums in LATTE.

The following are the **minimum** requirements for discussion participation:

1. **Post in the discussions on at least 3 out of the 7 days each week.**
2. **Initial responses to each of the discussion topics are due** by end of day Saturday (midnight EST). These responses should be 300-400 words (300 words minimum) and include your own insights into the topics. You must demonstrate an integration of theory and experience. If necessary, you can substitute experience details with direct comparisons to relevant fields of interest. Any relevant sources used within the post should be cited appropriately.
3. **Post at least 2 follow up responses in each of the discussion topics** by end of day Wednesday (midnight EST) each week. These other posts will be responses to the discussion topic messages of others. The assumption is that you will read through the posts of your classmates to enhance your learning; respond to those of your choice, based upon your own experiences and insights.

Completion of the above criteria **does not** guarantee full credit for the weekly discussion. These are the absolute minimum requirements for each week.
Timely participation is important to ensure that everyone has the necessary input from others to complete their own work. Keep in mind that these postings to the Discussions forums will be as rich as we make them; not having a traditional classroom in which to discuss topics, we can have some interesting discussions and share our experiences during the 10 weeks. These discussions are required to encourage you to share your knowledge and ideas while gaining from the experiences of your peers as well.

**Discussions will be evaluated on:**

1. **Timeliness**
2. Initial response to each topic that is based primarily on your analysis of:
   - Personal experience AND/OR
   - Research you have conducted AND/OR
   - Your opinions with references AND/OR
   - Grammar/format/sources noted as appropriate AND/OR
   - Sufficient detail - original responses should be at least 350-500 words
3. Follow up responses (minimum of 2 follow-up posts for each discussion question)
   - Your responses to colleagues are meant to share thoughts and experiences, but the content of each post must bring something new and valuable to the class. I expect each of your replies to be more than just 1 or 2 sentences, and, where possible, you should support your comments with reading from elsewhere. Postings that don't add to the discussion will not contribute to your grades.

2. **Quiz Assessments (20% of grade):**

Please refer to the Quiz instructions posted on LATTE for additional information.

- There are four short quiz assessments in the course each worth 5% of your grade.
- Each quiz is open book and untimed, and will be made available on LATTE.
- Each quiz will be available for the length of the week it is posted.

Quizzes cannot be taken late after the quiz has already closed, unless pre-arranged and approved by the instructor. Quizzes not taken during the open period will be graded as a 0.

3. **Individual and Group Assignments (20% of grade):**

Please refer to the assignments' instructions posted on LATTE for requirements and grading criteria.

- There is one case study worth 10% of your grade.
- In addition, students will be required to submit one recorded group presentation using Adobe Connect, Microsoft PowerPoint, or an approved tool of their choice. The group presentation is worth 10% of your grade.

Late Case Study Assignments turned in within 24 hours late will receive a 50% penalty. Assignments turned in after 24 hours (without prior excusable notification) will not be accepted and will receive a grade of 0.
4. **Midterm Exam (15% of grade):**

Please refer to the midterm exam instructions posted on LATTE for additional information.

- The midterm exam consists of 50 questions of multiple choice, true/false, and matching types. Each question is worth 2 points for a total of 100 points.
- The exam is open book so you are allowed to use your textbook to assist you.
- You will have 120 minutes (2 hours) to complete the exam online.
- Dates for the exam will be posted on LATTE. You can begin the exam at any time between the dates posted. However, once you start, the timer will begin and count down 120 minutes.

You must begin your exam at least 120 minutes before the closing date/time of the exam (i.e. don’t wait until the last minute.) The online system automatically closes the exam at the scheduled time whether you’ve finished your exam or not.

5. **Final Research Paper (15% of grade):**

Please refer to the final research paper instructions posted on LATTE for requirements and grading criteria.

- Earlier in the course, you will select an approved Research Topic of your choice. You will submit your topic for approval and I will post feedback regarding your topic choice.
- Your Research Paper will be peer reviewed by the other students in the class. You will also be assigned to read other papers. This will count towards your discussion credit in Week 10.
- The final research paper is due at the end of Week 9 and they will be posted in Week 10 for peer review.

Late Final Research Papers turned in within 24 hours late will receive a 50% penalty. Final Research Papers turned in after 24 hours will not be accepted and will receive a grade of 0.
## II. Weekly Information

**Note:** Referenced below are Weekly Topics, Objectives, Readings, and Discussion Topics. All are located on the LATTE course site for the corresponding weekly block. Please refer to the weekly modules in LATTE for the most up-to-date details and announcements.

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Overview of Existing Health Care Systems</th>
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</table>
| **Outcomes** | • Evaluate the fundamentals of health care providers, payments, and spending  
• Distinguish the differences of public health care versus private health care  
• Identify efficiencies of health care systems |
| **Discussions (for DL)** | • Weekly discussion topics are found on LATTE |
| **Readings** | • Refer to Weekly Topic Notes, Week 1  
• Textbook, Preface  
• Textbook, Chapter 1 *Introduction to Health Care Information*,  
• Textbook, Chapter 2 *Health Care Data Quality* |
| **Assignments / Assessments/ Self-Assessments** | • None |

<table>
<thead>
<tr>
<th>Week 2</th>
<th>Introduction to Health Information Technologies</th>
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| **Outcomes** | • Define and understand history of health and medical informatics  
• Learn about roles and sub-specialties within HIT field  
• Discuss implementation, adoption, and current issues |
| **Discussions (for DL)** | • Weekly discussion topics are found on LATTE |
| **Readings** | • Refer to Weekly Topic Notes, Week 2  
• Textbook, Appendix A *Overview of the Health Care IT Industry*  
• Textbook, Chapter 4 *History and Evolution of Health Care Information Systems*  
• Textbook, Chapter 7 *System Acquisition* |
| **Assignments / Assessments/ Self-Assessments** | • Case Study Assignment #1 assigned (due end of Week 3) – Read Case Study and complete questions |

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<tr>
<th>Week 3</th>
<th>Language Within Health Care Environment</th>
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| **Outcomes** | • Explore Health Information Management (HIM)  
• Analyzing the existence of standards in health care (i.e. HL7, etc.) |
<table>
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<tr>
<th>Discussions (for DL)</th>
<th>• Weekly discussion topics are found on LATTE</th>
</tr>
</thead>
</table>
| **Readings** | • Refer to Weekly Topic Notes, Week 3  
| | • Textbook, Chapter 3 *Health Care Information Regulations, Laws, and Standards*,  
| | • Textbook, Chapter 10 *Health Care Information System Standards* |
| **Assignments / Assessments/ Self-Assessments** | • **Case Study Assignment #1 is due (end of Week 3)**  
| | • **Quiz #1 available and due in Week 3**  
| | • Topics for Research Project for selection posted (due end of Week 4) |

### Week 4

**Introduction to Computerized Patient Records**

| Outcomes | • Analyze the Electronic Health Record (EHRs) and Personal Health Records (PHRs)  
| | • Discuss computerized patient records risks; and Health Information security, confidentiality, and privacy issues |
| **Discussions (for DL)** | • Weekly discussion topics are found on LATTE |
| **Readings** | • Refer to Weekly Topic Notes, Week 4  
| | • Textbook, Chapter 5 *Clinical Information Systems*  
| | • Textbook, Chapter 11 *Security of Health Care Information Systems* |
| **Assignments / Assessments/ Self-Assessments** | • **Quiz #2 available and due in Week 4**  
| | • **Proposal for Research Project is due (end of Week 4)** |

### Week 5

**Administrative, Clinical, and Other Impacts of Health IT**

| Outcomes | • Explore role of key health information systems in improving patient care, administration, and education  
| | • Differentiate various IT infrastructures in the health care environment  
| | • Identify importance of health information technology in non-clinical care settings—research, etc. |
| **Discussions (for DL)** | • Weekly discussion topics are found on LATTE |
| **Readings** | • Refer to Weekly Topic Notes, Week 5  
| | • Textbook, Chapter 9 *Technologies That Support Health Care Information Systems*  
| | • Textbook, Chapter 17 *Assessing and Achieving Value in Health Care Information Systems*  
| | • Textbook, Chapter 13 *IT Alignment and Strategic Planning* |
| **Assignments / Assessments/ Self-Assessments** | • **Quiz #3 available and due in Week 5**  
<p>| | • Case Study Assignment #2 assigned (due end of Week 6) – Read Case |</p>
<table>
<thead>
<tr>
<th>Week 6</th>
<th>Evaluating Clinical Information Systems</th>
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</table>
| **Outcomes** | - Introduction to Clinical Information Systems  
- Examine and evaluate Decision Support Systems |
| **Discussions (for DL)** | - Discussion topics will be posted on LATTE. |
| **Readings** | - Refer to Weekly Topic Notes, Week 6 |
| **Assignments / Assessments / Self-Assessments** | - *Group Presentations are due (end of Week 6)*  
- *Quiz #4 available and due in Week 6* |

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<thead>
<tr>
<th>Week 7</th>
<th>Introduction to Transportation of Electronic Health Data</th>
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</table>
| **Outcomes** | - Recognize differences in Health Information Exchange  
- Explore established HIE in hospital settings, communities (RHIOs, etc.), and other |
| **Discussions (for DL)** | - Weekly discussion topics are found on LATTE |
| **Readings** | - Refer to Weekly Topic Notes, Week 7 |
| **Assignments / Assessments / Self-Assessments** | - **Midterm Exam available** (Multiple Choice and Short Answer) |

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<tr>
<th>Week 8</th>
<th>Introduction to Connected Health Care</th>
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| **Outcomes** | - Introduction to telehealth and telemedicine  
- Explore public health surveillance impacts  
- Discuss mobile health (mHealth) |
| **Discussions (for DL)** | - Weekly discussion topics are found on LATTE |
| **Readings** | - Refer to Weekly Topic Notes, Week 8 |
| **Assignments / Assessments / Self-Assessments** | - **Midterm Exam is due (by end of Week 8)** |

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<thead>
<tr>
<th>Week 9</th>
<th>Research and Opportunities in Health Informatics</th>
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| **Outcomes** | - Explore current and future directions of Health IT  
- Identify research initiatives in patient repositories, pharmacovigilance, and biomedical informatics  
- Discuss how today’s computing (high performance computing, cloud computing) impacts health IT |
<table>
<thead>
<tr>
<th>Discussions (for DL)</th>
<th>• Weekly discussion topics are found on LATTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings</td>
<td>• Refer to Weekly Topic Notes, Week 9</td>
</tr>
<tr>
<td>Assignments /</td>
<td>• <strong>Final Research Project is due (end of Week 9)</strong></td>
</tr>
<tr>
<td>Assessments/</td>
<td></td>
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<tr>
<td>Self-Assessments</td>
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<tr>
<th>Week 10</th>
<th>Presentations of Student Projects</th>
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<tbody>
<tr>
<td>Outcomes</td>
<td>• Discuss the various applications of IT in Health Care from different student interests</td>
</tr>
<tr>
<td>Discussions (for DL)</td>
<td>• As assigned, analysis of peer’s research project (at least 250 words per analysis); each student is assigned a research project to read and analyze.</td>
</tr>
<tr>
<td>Additional Readings</td>
<td>• Refer to Weekly Topic Notes, Week 10</td>
</tr>
<tr>
<td>Assignments / Assessments / Self-Assessments</td>
<td>• None</td>
</tr>
</tbody>
</table>
III. Course Policies and Procedures

1. Course Information for RHIN-110

- Course weeks run Wednesday to Wednesday midnight (11:59 PM EST Wednesday)
- Please remember that course deadlines reflect the Eastern time zone, which might not be the same as your local time zone
- There is a grace period to reflect time zone differences; assignments and discussions can be turned in up to 6 hours late for full credit.

2. Grading Standards

- Assignments must be your original work, with sources properly cited. Information on how to cite sources correctly is posted in our LATTE course site.
- All assignment/work submissions must be made in Microsoft DOC/DOCX or Adobe PDF or OpenOffice formats.
- How points and percentages equate to grades:
  
<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100 points</td>
<td>A</td>
</tr>
<tr>
<td>90-94 points</td>
<td>A-</td>
</tr>
<tr>
<td>87-89 points</td>
<td>B+</td>
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<tr>
<td>85-87 points</td>
<td>B</td>
</tr>
<tr>
<td>80-84 points</td>
<td>B-</td>
</tr>
<tr>
<td>77-79 points</td>
<td>C+</td>
</tr>
<tr>
<td>75-77 points</td>
<td>C</td>
</tr>
<tr>
<td>70-74 points</td>
<td>C-</td>
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</tbody>
</table>

Grades below B- will not earn credit toward a graduate program.

Often, students will receive tuition reimbursement from their employers that varies based on final grades. The instructors have no control over these policies and cannot take them into account when determining grades. You are responsible for knowing about your employer’s reimbursement policy.

3. Feedback

I will do my best to provide feedback on assignments within 2 weeks of the due dates. If there is a delay, I will post in LATTE so you will know what to expect. I will provide feedback on discussion participation within a week.

4. Confidentiality

The LATTE course site is available only to students registered in the course. However, the course is also visited by administrators, LTS staff, and sometimes faculty who are training to be DL instructors. Staff who have access to the course site must agree to specific nondisclosure requirements. In some cases, you will be notified before visitors enter the course; in other situations (such as for emergency maintenance of LATTE), you will not be notified.

Topics discussed in class are intended to remain private among class members. However, this is not the same as a formal nondisclosure agreement. Please do not share information that is proprietary to your employer or someone else.

The materials and messages we post in LATTE become long-term academic records of the University. They will be used for program quality assurance, and as evidence for reaccreditation.
5. Class Schedule and Cancellations

DL courses generally are not cancelled due to inclement weather, but course operations might be delayed due to serious problems with LATTE. We will post messages if course deadlines need to be adjusted.

6. Contact Me

If you have any questions, comments, or concerns, please feel free to contact me at any time. I am best reachable through e-mail yonidvorkis@brandeis.edu
IV. University and Division of Graduate Professional Studies Standards

Please review the policies and procedures of Graduate Professional Studies, found at http://www.brandeis.edu/gps/students/studentresources/policiesprocedures/index.html. We would like to highlight the following.

Learning Disabilities

If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accommodation made for you in this course, please contact me immediately.

Academic Honesty and Student Integrity

Academic honesty and student integrity are of fundamental importance at Brandeis University and we want students to understand this clearly at the start of the term. As stated in the Brandeis Rights and Responsibilities handbook, “Every member of the University Community is expected to maintain the highest standards of academic honesty. A student shall not receive credit for work that is not the product of the student’s own effort. A student’s name on any written exercise constitutes a statement that the work is the result of the student’s own thought and study, stated in the students own words, and produced without the assistance of others, except in quotes, footnotes or references with appropriate acknowledgement of the source.” In particular, students must be aware that material (including ideas, phrases, sentences, etc.) taken from the Internet and other sources MUST be appropriately cited if quoted, and footnoted in any written work turned in for this, or any, Brandeis class. Also, students will not be allowed to collaborate on work except by the specific permission of the instructor. Failure to cite resources properly may result in a referral being made to the Office of Student Development and Judicial Education. The outcome of this action may involve academic and disciplinary sanctions, which could include (but are not limited to) such penalties as receiving no credit for the assignment in question, receiving no credit for the related course, or suspension or dismissal from the University.

Further information regarding academic integrity may be found in the following publications: "In Pursuit of Excellence - A Guide to Academic Integrity for the Brandeis Community", "(Students’) Rights and Responsibilities Handbook", AND " Graduate Professional Studies Student Handbook". You should read these publications, which all can be accessed from the Graduate Professional Studies Web site. A student that is in doubt about standards of academic honesty (regarding plagiarism, multiple submissions of written work, unacknowledged or unauthorized collaborative effort, false citation or false data) should consult either the course instructor or other staff of the Rabb School Graduate Professional Studies.

University Caveat

The above schedule, content, and procedures in this course are subject to change in the event of extenuating circumstances.