Information Technology in the Healthcare System of the Future
Spring 2009

Steven Locke, MD
Course Director

Mirena Bagur
Associate Director

Bryan Bergeron, MD
Daniel Sands, MD, MPH
Assistant Directors
Agenda

• Welcome and Introductions
• Course Mission Statement
• Course Overview
  – Faculty, Students, and Sponsors
  – Lectures
  – Tutorials
  – Practicum – Projects and Final presentations
• FAQs
  – Registration & Credit
• Q&A
Mission Statement

The mission of this course is to empower students to critically analyze a current -- or future -- problem in health care, and working in teams, develop a novel solution using information technologies.
Course Overview
Course Faculty

Steven Locke, MD
Associate Professor of Psychiatry, HMS; Associate Professor of Health Sciences and Technology, MIT

Mirena Bagur
CONTeXO Consulting

Bryan Bergeron, MD
President
Archetype Technologies
Assistant Professor of Health Sciences and Technology, MIT

Daniel Sands, MD, MPH
Director of Medical Informatics, Cisco
Assistant Professor of Medicine, HMS

Teaching Assistant:
Julie Hermann, MS/MBA Candidate
Harvard-MIT Biomedical Enterprise Program
Industry Mentors

- Winfried A. Burke,
  - Managing Partner, CONTeXO
- Francis X. Campion, MD
  - Director of Provider Programs for Outcome, Inc., Cambridge, MA
  - Director for the Complex Chronic Care Disease Management Program at Harvard Vanguard Medical Associates
- Sherri Dorfman
  - Founder, Stepping Stone Partners
- Mark Hauser, MD
  - OnSite Psychiatric Services
- Gary Hirsch, SM
  - Consultant, Creator of Learning Environments
- Frank Schwichtenberg
  - Senior Technologist, IBM Internet Technology Group
# Industry Partners 2009

<table>
<thead>
<tr>
<th>Corporate Partners</th>
<th>Other Participating Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco</td>
<td>• Archetype Technologies, Inc.</td>
</tr>
<tr>
<td>Intel</td>
<td>• Division of Clinical Computing, Beth Israel Deaconess Medical Center</td>
</tr>
<tr>
<td>Atrius Health</td>
<td>• Veritas Health Solutions LLC</td>
</tr>
<tr>
<td>Symantec</td>
<td>• Center for Medical Simulation</td>
</tr>
<tr>
<td></td>
<td>• CONTeXO Consulting</td>
</tr>
</tbody>
</table>
Technology-driven Healthcare

Technology

- Speech recognition
- OCR
- LCDs
- Security
- Genomics
- ASP
- Printers
- Wireless
- PDAs
- Laptops
- Cell phones
- Email
- Internet

Healthcare Systems

- Custom drugs
- Home monitoring
- EMR
- PHR
- ePrescribing
- Self-assessment
- Supported self-care
- Disaster preparedness
- Behavioral
- Telehealth
- Telemedicine
- Disease surveillance

Technology Healthcare Systems
Guest Lecturers

Eugene Hill, MBA
Senior Partner, Schroeder Life Sciences

Karen Bell, MD, MMS
Senior VP, Healthcare IT Services, Masspro

John Glaser, PhD
CIO, Partners Healthcare
## Expert Panelists

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chris Carter</td>
<td>SVP, Internet Innovation, Healthways</td>
</tr>
<tr>
<td>Lynne Dunbrack</td>
<td>Health Industry Insights</td>
</tr>
<tr>
<td>Joshua Feast</td>
<td>CEO, Cogito Health</td>
</tr>
<tr>
<td>Judith Frampton RN, MBA</td>
<td>VP, Harvard Pilgrim Health Care</td>
</tr>
<tr>
<td>Al Lewis JD</td>
<td>Founding President, DMAA</td>
</tr>
<tr>
<td>Afsana Akhter Meng</td>
<td>Director, Business Development, Medullan</td>
</tr>
<tr>
<td>Ben Williams</td>
<td>CEO, Firefly</td>
</tr>
<tr>
<td>Craig Schneider PhD</td>
<td>Mass Health Data Consortium</td>
</tr>
<tr>
<td>Barry Zallen MD</td>
<td>Medical Director, BCBS MA</td>
</tr>
<tr>
<td>Larry Nathanson MD</td>
<td>Beth Israel Deaconess Medical Center</td>
</tr>
<tr>
<td>David Ahern PhD</td>
<td>Robert Wood Johnson Foundation</td>
</tr>
</tbody>
</table>
Projects & Final Presentation
Group Design Projects

- Student driven
- Corporate partner driven
- Multidisciplinary teams
- Tracks
  - Design, Business, Marketing, Trials
- Class exercises (design, elevator pitch)
- Group final presentations and paper
Common Elements

1. Objective of the group project
2. Proposed product or service solution
3. Industry summary
4. Analysis
   - Problems with current solutions
   - Competitive analysis
   - Porter model
   - Evaluation of macro-industry forces
   - Micro-stakeholder analysis
5. Interaction diagrams
6. Reflection on cost, quality, and access
Project Track Selection

• Track 1: Marketing Analysis
• Track 2: Business Plan
• Track 3: Product Design Plan
• Track 4: Clinical Trial/Product Evaluation

Each team chooses two out of four
Market Analysis and Plan

1. Market Background
2. Future Directions of Market
3. Market Size/Forecast
4. Customers/Customer Segmentation
5. Target Market Segments
6. Product Description
7. Pricing
8. Promotion
9. Sales and Distribution Strategy
Business Plan

1. Partnering
2. Staffing Plans
3. Advisory Board
4. Risk Management (analysis of specific risks and address various scenarios)
5. Financial Projections and Resources Required
6. Near Term Milestones and Expenses
7. Long Term Projections
## Product Design

### The Product
1. Product Definition and Goals
2. Product Requirements/Specifications
3. Expected Product Lifecycle
4. Product Add-ons, Third Party Tool Sets
5. Follow-on Products

### User Profile
1. Job Description
2. User Skills, Knowledge and Education
3. Work Style
4. Concerns
5. Wants
6. Requirements
7. Work Environment
Clinical Trial

1. Rationale
2. Objectives
3. Study design and hypotheses
4. Participants
5. Intervention
6. Primary and secondary endpoints
7. Sample size (optional)
8. Anticipate time frame for study completion
9. Data collection; sub-protocols, intervals, encounters, events
10. Analysis
Sample Student Projects
1999-2008

• J&J - Empowering Consumers and Physicians via Consumer-led Social Media Networks
• Healthways - Improving Physician Engagement Through Technology
• Playdiatrix™ - Serious Games for the Improvement Of Pediatric Care
• Venture Capital Investment in Cancer Diagnostics Technologies
• Careplace - Online Health Consumer Empowerment, Advocacy, and Support
• Technology Opportunities in Healthcare for the Baby Boomer Generation
• Computer-Assisted Disease Management to Improve Outcomes in Diabetic Patients
Sample Projects (more)

• Clinical Outcomes and Profitability of a New Infusion Pump Technology System
• Patient Express™ - An Internet Service for Personal Management of Medical Images
• Caregroup PatientSite – Web-based Interactive Electronic Medical Record
• GlucoGPS: Product Design and Marketing Strategy
• Analysis of Information Technology Applied to Clinical Trials
• D-Tree: Medical Diagnosis Software for Palmtops
• Fast Infectious Disease Observation System (FIDO) for Syndromic Surveillance
FAQ’s

- Course auditing
- Project selection
- Required readings
- Required paper
- School-specific credit
- Work load
- Attendance
- Professional standards