Advanced Improvement Methods (AIM) Course Plan
Wave 11

**Purpose**
To enhance knowledge and skills to apply the science of improvement to the design, implementation, and study of quality improvement initiatives in clinical settings, and to apply improvement theory and methods to the leadership of projects involving research, clinical care and operations.

**Target Audience**
Faculty who lead improvement projects and already know the basics of quality improvement and clinical epidemiology and/or research methods.

**Instructional Methods**
Lectures, discussions, case studies, application exercises, computer simulation, conference calls.

**Pre-Work**
Read and have working knowledge of information contained in the following text:


2. Identify an improvement project to be completed through use of the theory and methods acquired in this course.

3. Obtain any necessary training in Microsoft Excel in order to reach a comfort level in working with intermediate spreadsheets, graphs, and charts.

**NOTE:** Each session will involve sharing progress on your project and students will report on project progress between sessions.

**Additional Textbooks** (these will be distributed at the first workshop)


Reading:
- Before Workshop 1 – Chapter 1 (overview of Improvement Guide, and Chapter 2)
- At Workshop 1: Chapters 4, 5
- Before Workshop 2: Chapters 2 and 3
- Before Workshop 3: Chapters 7, 8, 9, 10, 13 (case studies)
- Before Workshop 4: Chapters 12


Reading:
- At Workshop 1: Chapter 2
- Before Workshop 2: Chapters 3, 4, 5, , and 10
- Before Workshop 3: Chapter 9
Supplemental Book List
(Each student will read and review at least one of the following)

<table>
<thead>
<tr>
<th>Book Title</th>
<th>Author</th>
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<tbody>
<tr>
<td>The Goal</td>
<td>Eliyahu Goldratt and Jeff Cox, North River Press, Inc. NY, 1986</td>
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<tr>
<td>Crossing the Quality Chasm: A New Health System for the 21st Century</td>
<td>Institute of Medicine, National Academy Press, Washington, D. C., 2001</td>
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<td>The Fifth Discipline</td>
<td>Peter Senge, Doubleday, NY, 1990</td>
</tr>
<tr>
<td>The Economic Control of Quality of Manufactured Product</td>
<td>Walter Shewhart, 1931, reprinted by ASQC, Milwaukee, WI 1980</td>
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<tr>
<td>Thinking Slow and Fast</td>
<td>Daniel Kahmann, 2013</td>
</tr>
<tr>
<td>Serious Creativity</td>
<td>Edward DeBono, Harper Business, New York, 1992</td>
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Articles (posted on Blackboard):

Prior to Workshop 1
Prior to Workshop 2

- Review MidState Brick handout from Workshop 1

Prior to Workshop 3

- *N-of-1 Trials: A New Future?*, Larson Eric, J. Gen Intern med 25(9), p891-2, July 2010
- *Improving the Reliability of Health Care*, Thomas Nolan, PhD, Roger Resar, MD, Carol Haraden, PhD, Frances A. Griffin, RRT, MPA, Institute for Healthcare Improvement Innovation Series 2004; [www.ihi.org](http://www.ihi.org)

Prior to Workshop 4

- *Execution of Strategic Improvement Initiatives to Produce System-Level Results*. Nolan, TW. IHI Innovation Series white paper. Cambridge, Massachusetts, Institute for Healthcare Improvement; 2007 (available at [www.IHI.org](http://www.IHI.org))
- Planned Experimentation for Airline Boarding handout

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### Workshop 1
**September 3 & 4, 2015 (CCHMC)**
- Overview of the AIM Program
- The Science of Improvement
- Using the Model for Improvement
- Project Overviews
- Understanding Variation and Shewhart Control Charts
- Computer Simulation – MidState Brick
- Planned Experimentation
- Assignments

### Conference Call 1
**October 21, 2015 (1:30 to 3:00pm EST)**
- Agenda customized to the class need.
- Assignments
- Project Presentations
- Book Review

### Conference Call 2
**November 18, 2015 (1:30 to 3:00pm EST)**
- Agenda customized to the class need.
- Assignments
- Project Presentations
- Book Review

### Workshop 2
**December 3 & 4, 2015 (CCHMC)**
- One-Factor Experiments
- Project Presentations
- Computer Simulation
- Factorial Experiments
- Fractional Factorial Designs
- Advanced Experimental Designs
- Assignments

### Conference Call 3
**January 13, 2016 (1:30 to 3:00pm EST)**
- Agenda customized to the class need.
- Translation of Planned Experiment to Projects
- Project Presentations
- Book Reviews

### Conference Call 4
**February 24, 2016 (1:30 to 3:00pm EST)**
- Agenda customized to the class need.
- Assignments
- Project Presentations
- Book Reviews

### Workshop 3
**March 31 & April 1, 2016 (Austin, TX)**
- Applications of Planned Experimentation
- Project Presentations
- Conjoint Analysis
- Control Chart Selection
- Book Reviews
- Control Chart Applications
- Change Concepts – reliability
<table>
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<tr>
<th>Assignments</th>
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**Conference Call 5**  
April 20, 2016 (1:30 to 3:00pm EST)  
- Agenda customized to the class need.  
- Assignments  
- Project Presentations  
- Book Reviews

**Workshop 4**  
May 26 & 27, 2016 (CCHMC)  
- Advanced Control Charts  
- Project Presentations  
- Spread of Improvements  
- Airline Loading Case Study  
- Book Reviews  
- Leadership of Improvement  
- Closing