Just-in-Time Teaching (JiTT)

- Case study: Teaching like a physicist
- JiTT Basics
- Assessment
- Foretaste of tomorrow
Case Study: Background

- Content knowledge ✓
- Background in pedagogy x
- Background in brain science x
- Training as an instructor x
- Youth and hipness x
- Training as an experimentalist ✓
Case study data

• My first teaching evaluations
• 21 item Likert Scale, 3 groups
• Clarification of Course Material
  \[ Z = -0.5 \]
• Instructor Activities
  \[ Z = -0.6 \]
• Instructor Skills
  \[ Z = -0.6 \]
• Comments: mediocre to downright ugly
Case study conclusions

• **BIG trouble**
• A new mentor
• A year of lunches
  • Learning to listen
  • Student centered teaching
  • Burgeoning understanding of learning styles
  • The Chicago bus driver
• *Development of Just-in-Time Teaching*
Just-in-Time Teaching

• What do you think this phrase means? (No ringers, please!)
For Visual Learners

World Wide Web

Homework   Student   Classroom

Assignment   design
For text lovers

- “WarmUp Exercises” due two hours before class
- Open ended short essay questions covering the day’s material
- A pre-class, online reading quiz
- Instructor adjusts plan for the day “Just in Time”
- Discussion based on what students understand and what they do not
If you like examples

- **Nursing:** Describe the similarities and differences of epinephrine and vasopressin in the ACLS context.
- **Biology:** In your own words, explain the difference between a *theory* and a *belief*?
- **Math:** If a function has an inverse and is an increasing function, can you determine if the inverse is increasing or decreasing? Explain.
- **Philosophy:** How does Aristotle characterize a man without a state?
- **Economics:** Describe an example of the cost/benefit principle from your own life experience
Assessment of JiTT

- Retention rates in classes
- Client departments
- Student reports of study habits
- Final exam items paired to Warm Ups, traditional homework, other exercises
- Affective measures (surveys, focus groups)
- Teaching evaluations
Assessment example I

- Q1 Do the WarmUps help you stay caught up?
- Q2 Do you “Cram” before tests in this course?
- Q3 Do you “Cram” in your other courses?

<table>
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<th>1- Yes</th>
<th>2- Yes</th>
<th>3- Yes</th>
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<tbody>
<tr>
<td>“A” students</td>
<td>85%</td>
<td>14%</td>
<td>43%</td>
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<tr>
<td>“B” students</td>
<td>89%</td>
<td>39%</td>
<td>61%</td>
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<tr>
<td>“C” students</td>
<td>89%</td>
<td>47%</td>
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<tr>
<td>“D” students</td>
<td>84%</td>
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<td>“F” students</td>
<td>92%</td>
<td>58%</td>
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</tr>
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Example II: Retention

First Semester Attrition (152)

Second Semester Attrition (251)

Attrition in Calculus 164

Attrition in Biology N100
Preview of breakout sessions

- Adopting JiTT—what, how, and when
- Highly interactive
- Answers these questions
  - What will my class really be like?
  - How can I develop good questions?
  - How do I grade?
  - How can I know this is working?
  - How much time is this going to take?
  - What technology can I use?
  - When do I begin?