Transformed for UM’s Third Century

Provost’s Seminar on Teaching
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A little history

- NSF WIDER program: promotes evidence based teaching
- REBUILD grant received in summer 2013: Physics, Chemistry, both Biologies, Math
- Three years of work to explore reform of big intro STEM courses

**Elements of REBUILD**

1. Faculty committee – exploring research and advocating for change
2. Two years of colloquia in every dept & 2 PSOTs
3. Multigenerational teams: five teaching postdocs
4. Strong analytic support

Various outcomes across departments
The REBUILD process taught us...

- Excellence exists in many pockets
  - Courses taught by dedicated, stable teams: Chemistry, Math, English, Statistics
  - Maintained by sustained, substantial commitment from individual faculty & staff, departments, and the college

- We’re not institutionally arranged to encourage and support reform
  - Heroic evidence-based reforms strain the system: Bio 171/173, Physics 140/240, Astro courses
  - External funding (HHMI & more) can get things started, but doesn’t last
Teaching in teams

• Best large courses taught in multigenerational teams with role specialization

• These mirror research teams: faculty, lecturers staff, postdocs, grad students, undergrads

• Roles include: course management, preparation and design, delivery of instruction in large and small groups, technology support, student study groups, honors enrichment, supplemental instruction, assessment

Teams stable in roles & structure, rather than individuals
How to build on REBUILD?

• How to get to a place where top quality large courses are the norm?
• REBUILD began working w/CRLT on this last winter
  – Met with faculty and staff who work on these courses in focus groups on what they need, department chairs across STEM
  – Also met with student groups: their input is important & informative!
• Today: Provost’s Seminar on Teaching
  – What a reformed course might be, and how we might get there
• Considering paths to transformation driven by:
  – Data
  – Inclusion
  – Pedagogy
  – Technology
REBUILD Seminar Series
During the 2016/17 academic year we’re exploring how other institutions have implemented new support structures for foundational courses.
9,200 Courses at Michigan

- The vast majority are handmade, artisanal
  - Small & changeable
  - Taught in idiosyncratic, engaged, and creative ways
  - Faculty members whose research experience influences both course content and their pedagogical approach

- Some (1-2% of the list) are manufactured
  - Large & relatively stable
  - Taught in industrial, remote, and tradition-bound ways
  - Often far from the research experience of instructors, which influences neither content nor pedagogy

Most courses on campus already have what they need to be excellent.
Large foundational courses are different: they could be dramatically better with more and different forms of support.
Students encounter foundational courses in many ways

• As central prerequisites considered essential for further study in a discipline
• As a first encounter with hands-on lab, studio, or performance work
• As opportunities to discover unimagined areas for concentration
• As one-time visits to disciplines focused on distribution
• As courses intended to build skills for use in other disciplines
Foundational courses are important

Students pay more than $150 million in tuition for these foundational courses every term!
A Foundational Course Initiative

• REBUILD collaborating with CRLT on a proposal for next generation support of a new category of ‘Foundational Courses’
  – Ask for renewed commitment from departments, offer unprecedented forms of support
  – Apply the ‘Foundational’ label to courses when these new commitments and support is in place
  – Students considering large courses should begin to seek courses labeled in this way…
What makes a course foundational?

- Most of the course’s home department shares a slowly evolving understanding of course goals.
- This sense will often be shared by the discipline more broadly.
- Could be lecture, lab, etc.
- The course is offered very regularly. Usually it will have a long history of regular offerings.
- The course has large enrollments.
- The course serves students with especially various backgrounds.
- The course serves students with especially various interests and goals.
- The course regularly changes instructors, and is often taught by a team of faculty and lecturers.

We believe ‘foundational’ courses exist across many disciplines, most of which are outside the natural sciences, and intend this initiative to be campus-wide.
Why now? An unusual opportunity

• Convergence creates a chance for us to get the reform we want
  – UM’s Third Century
  – UM’s Academic Innovation Initiative
  – National conversation, AAU STEM Initiative
  – Important, visible role of large courses at Michigan

• Teaching in an information age enables something new
  – Technology supports tools which help us teach at scale
  – Research suggests ways courses might be improved
  – Data provide strong ways to test what we try
What can you do?

• Attend today’s PSOT and contribute your ideas
• Begin thinking about courses which might be well-served by foundational support
• Keep track of support needs which would be most valuable for you and your students, and of reform ideas from here and elsewhere
• Consider attending REBUILD seminars on transforming teaching this year & pitching in