

WORKSHEET: QUESTIONS TO ADDRESS

1. What is the driver for change? What specific changes would you like to make to one or more of your institution's introductory STEM courses, and what specific outcomes are you hoping to achieve?

ANSWER 1:

Enrollment growth, Retention, Failure Rate, Preparation students bring to course, Changing demographics, Program evolution

Students' value what they have learned.

Improve faculty's understanding of student experience

ANSWER 2:

Disorientation- not the same as high school, don't get feedback until week 4

Writing problem- revamp curriculum, practice writing provide ample feedback

Divided lab report into chunks, completed pieces at different times

*Coverage issues *Lack of lab in Gen Ed

ANSWER 3:

What outcome descended → what to drivers

Driver

- basic summer concepts not sufficient to understand the skills necessary to science practice
- low retention rates in science & math
- gen ed students not interested in science

Outcome

- Critical thinking skills
 - Students as life long learning (greater level of interest)
 - Increase clarity of expectations & objectives
 - Outcome successful course completion, greater enrollment
 - Increase interest in science among gen ed students
 - Understand for retention loss
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ANSWER 4:

Driver- not seeing outcomes dense in terms of student knowledge or student Prep for higher level classes in terms of critical independent inquiry

Caveat- one school is business focus

ANSWER 5:

- ability to solve problems, think critically → scientific inquiry
 - apply knowledge from course into another course
 - students notice differences between faculty styles/pedagogies
 - faculty not sure how to use pedagogies such as writing
- * (all of the above) all fit together- we want our students to think critically- we know there are pedagogies that could be used which means need for faculty dialogues & faculty development.
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ANSWER 6:

Drivers:

- grant to design integrated approach to science education / state ed standards
- k-12 teachers responses to science
- fear of the new
- DFW rates structures/ attriters, death of motivation because of not knowing about careers in science, so few “ B students” choosing science majors

Outcomes:

- confidence, motivation, success, attitudes toward STEM
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ANSWER 7:

Infuse science in general curriculum
Talk science intelligently

Passion and curiosity to go to further levels for nonscientists as well

ANSWER 8:

Outcomes: Instill Curiosity
Take another course in science
Recruit Minorities

ANSWER 9:

Drivers: requirements of majors vs. nonmajors
Different math backgrounds = QL requirement campus wide.
&
Changes: remake intro courses to increase success rates and interdisciplinary content

ANSWER 10:

- Learn scientific concepts, instead of solving problems by mimickry, low solved grades
 - Study skills
 - Why science is optional
 - Lend-in science course
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ENERGY

ANSWER 11:

Drivers: - need for students to understand process
-frustration with students who fail to synthesize many bits of info

Changes: - in specific lessons to help students achieve the above

Outcomes: - students to understand process of science & be able to synthesize

ANSWER 12:

Driver = accreditation

Core-curriculum changed at Susquehanna

Need/desire to assess scientific courses (this is new)

Pull together intro courses in sciences—tools to access those courses- this is new

Developed having goals for whole curic. ; need to complete circle by looking at

Student outcomes.

Working with large supply of faculty.

Many different approaches= number of faculty are PKAL- savvy, some are not.

For people trying to “convert”, prof.= concern with content

Central curriculum changed, but science core curriculum did not change.

2.) What are the challenges/barriers/opportunities that will affect your ability to effect these changes? What “best practice” or model could you share with others embarking on similar transformations?

ANSWER 1:

Challenges: Time

Reward

Risk

Resistance of colleagues

Resistance of students

Opportunities: to experiment with different models

Need for support

Best Practice: interactive formative assessment

ANSWER 2:

Poor lab materials

Coverage: faculty engagement

Scale up model

Data to support change

ANSWER 3:

Challenge: -student engagement not at denied level

-core concepts vs. active learning experience

- enabling students to see connections between courses & disciplines

Barriers: - insufficient time to cover course material in nonlecture format

Opportunities: (blank)

ANSWER 4:

1. not sure where to go next

-have implemented successful course reconstruction and how looking at a Potential issue of student/ generational characteristic

2. assessment – not in place & maybe resistance to developing science specific assessment in business- focused college

ANSWER 5:

- assessment data: what is available?

- Opportunity: curriculum review processes on campus

- Opportunity: develop common competencies for a course- course objectives that are process-oriented rather than common content

- Barriers: faculty buy in, large class sizes

- Opportunity: faculty development

ANSWER 6:

- opportunities: funding “validated” the project of change
 - challenges: scaling up
 - weird schedules (appeared to faculty not students)
 - budget
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ANSWER 7:

What is the relevance from students?
Content barrier on accreditation tests on MCATS etc.
Part time people / Engaging other faculty
Student’s objections to doing things differently

ANSWER 8:

CHALLENGES:

Financial
Faculties’ inertia → Fac. Learning costs
Lack expertise → MIT scale-up
Lack resources, materials (lab manuals)

ANSWER 9:

University/College wide capture of assessment of data or student/faculty
Outcomes
Changing Gen-Ed requirements and affect or ability in upper-level courses
Best practice:
Assessment tools to monitor success of alternate approaches without realizing faculty

ANSWER 10: :

Challenge is slow...
Many students are not adequately prepared
Rigid curriculum
Assessment

ANSWER 11:

Challenges: faculty inertia and fear of change, unwillingness to learn new pedagogy
Lack of pedagogical resources to show best practices

ANSWER 12:

Challenge= Faculty inertia + Fear of change
Unwillingness to learn new pedagogy
Lack of pedagogical resources to show best practice

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3. If your group has time, consider what resources you might need to identify as necessary (people/tools/technologies) to undertake your change initiative?

ANSWER 1:

See above from question #2 (ANSWER 2)

ANSWER 2:

Money for more Faculty