Guiding Your Students to STEM Success

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for the
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Academic Affairs and Policy
Guided Pathways

- Notion of guided pathways is to provide guidance to students in terms of course-taking and milestones to track progress.
Guided STEM Pathways

Students take appropriate math and science courses in high school

Students arrive at college STEM-ready

Students begin STEM pathways with first semester in STEM academic focus area

Students hit milestones and graduate on time.

Students are retained as STEM majors

Students choose or change STEM majors without losing credit
Preparing for College

- Basic Required High School Curriculum mandates that students have:
  - 4 units of mathematics
    - Algebra I/Coordinate Algebra
    - Geometry/Analytic Geometry
    - Algebra II/Advanced Algebra
    - 4th unit
  - 4 units of science
    - Biology
    - Physics or physical science
    - Chemistry, earth systems, or environmental science
    - 4th unit
Arriving at College STEM-Ready

- Students majoring in science, technology, and mathematics should arrive at college ready to take MATH 1113 – Precalculus in Area A.
- Students majoring engineering or planning to attend Georgia Tech should arrive at college ready to take calculus.
- How do we ensure that students know what it takes to be STEM-ready?
Arriving at College STEM-Ready

- Improve STEM college readiness for K-12 students by defining mathematics and science requirements for STEM pathways and communicating clearly and repeatedly to high school students and counselors what it means to be “STEM-ready” in mathematics.
Of freshmen entering your institution each fall and declaring STEM majors, what percentage arrive(d) STEM-ready?

- Fall 2015
- Fall 2016
- Fall 2017
Creating STEM Pathways (Program Maps)

### USG Program Map Template - STEM

#### Year 1

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td>Area A1: ENGL 1101 (or institutional A1 course)</td>
<td>3</td>
</tr>
<tr>
<td>Area A2 math course: MATH 1113 (Pre-calculus) or Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>Area D STEM Lab Science 1</td>
<td>4</td>
</tr>
<tr>
<td>Area B, C, or E elective</td>
<td>1 - 3</td>
</tr>
<tr>
<td>Area E: POLS 1101</td>
<td>3</td>
</tr>
<tr>
<td><strong>Semester Total</strong></td>
<td><strong>14 - 16</strong></td>
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<table>
<thead>
<tr>
<th>Term 2</th>
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<tbody>
<tr>
<td><strong>Course</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td>Area A1: ENGL 1102 (or institutional A1 course)</td>
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<tr>
<td>Area D STEM math course: Calculus I or Calculus II</td>
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<tr>
<td>Area D STEM Lab Science 2</td>
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</tr>
<tr>
<td>Area B, C, E or F elective</td>
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#### Milestones

- Complete ENGL 1101
- Complete Area A2 mathematics course
- Complete at least 15 credit hours
- Maintain at least a 2.0 grade point average

- Complete ENGL 1102
- Complete all Area A requirements
- Complete all Area D requirements
- Declare major
- Meet with an advisor
- Accumulate 30 or more collegiate credits
- Maintain at least a 2.0 grade point average
**Program Map Essentials**

- Encourage students to take at least 15 credits per semester to promote on-time degree completion.
- Clearly specify appropriate science sequences for STEM students.
  - Science programs must require two four-hour laboratory science courses in Area D.
  - Biology, Chemistry, and Physics specify particular courses for STEM majors.
- Include milestones to be reached at the end of each semester.
## Program Map Essentials

- Develop a STEM-focused first-semester course plan

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Tracking Your Progress With STEM Students

- One year retention as STEM majors for students entering:
  - Fall 2015
  - Fall 2016
  - Fall 2017

- One year credit accumulation for STEM students entering:
  - Fall 2015
  - Fall 2016
  - Fall 2017