In 2007, as part of a system-wide redesign project funded by the Fund for the Improvement of Postsecondary Education (FIPSE) and the National Center for Academic Transformation, Austin Peay State University pioneered an approach to remediation for incoming students who arrive with developmental needs in mathematics, reading and/or writing. This co-requisite model transformed their previous success rate of fewer than 10% of students completing a credit-bearing math class over several semesters to more than 70% completing a credit-bearing math class in a single semester. This work has been recognized by the Dana Center, Complete College America, Education Commission of the States, and Jobs for the Future as a national model for success in developmental education.

Based on this initial work the Tennessee Board of Regents began a study of the effectiveness of its system-wide approach to developmental education in community college, when success was viewed from the perspective of students completing a credit-bearing math, writing or reading-intensive class within an academic year. To understand more clearly how the preparedness of students would affect their potential success in these course completions we chose to disaggregate the data by ACT sub-score. Since system-wide, more than 60% of TBR students begin college with need for remediation in math, reading and/or writing the results of the analysis were startling. Overall only 12.3%
of the students who began in a remediation course completed a credit-bearing mathematics class, and only 30.9% completed a credit-bearing writing class.

In the Fall 2014, we carried out a substantial pilot of the co-requisite model of instruction in the community college setting. In mathematics, 645 students across 9 campuses were enrolled directly into an Introductory Statistics class, and were required to also attend a supplementary instruction experience. Similarly, 393 students at 7 community colleges were enrolled into a credit-bearing freshman writing class with required co-requisite support. We disaggregated the data by ACT score, so that we would be able to gauge the effectiveness of this approach for students with various levels of preparation.

The results of the pilot were extremely encouraging. In mathematics, of the 654 enrolled students, 62.5% received a passing grade in the class (compared to 12.3% under the old model). Not only did we see this 50 percentage point increase overall, but we saw strikingly higher success rates for students at every ACT mathematics sub-score.

These successes were not limited to mathematics. Of the 393 students enrolled in the writing pilot, 73.8% received a passing grade in the class. Once again this compares extremely favorably with the historical
success rate of 30.9%, and once again we saw gains for students at every ACT writing sub-score.

Recent discussion concerning the affective and non-cognitive aspects surrounding the college remediation experience recognizes the profound impact of students questioning whether they belong. We compared the success rates for students enrolled directly into the credit-bearing classes with the historical rates of students successfully completing the remediation designed to prepare them for that class. We have shown the results for mathematics here, but the results for writing are similar. Once again significantly larger proportions of students at every ACT sub-score level completed the credit-bearing class in a single semester than traditionally have completed their remediation in a full academic year. These results add significant credence to their being more than academic effects involved remediation success.

In response, the TBR System organized three co-requisite academies in March 2015, inviting faculty from all 19 institutions to present results from their pilot models and develop plans to take their pilots to institutional scale. All TBR universities and community colleges will be fully implementing the co-requisite mathematics, reading and writing models for all students beginning Fall 2015.

For further information concerning this study or other student success initiatives in the Tennessee Board Regents contact Dr. Tristan Denley. Vice Chancellor for Academic Affairs. tristan.denley@tbr.edu
Developmental Education Redesign Initial Outcomes

Three Broad Objectives
1. Decrease number of students placing in developmental education courses.
2. Reduce time in developmental education
3. Align developmental education across colleges and with college-level courses

VCCS Redesign
- Redesigned developmental math course sequences into 4-week modules and aligned pre-requisite modules with gateway math courses
- Redesigned developmental reading and developmental writing into integrated developmental English, with a co-requisite for students placing near college-ready
- Developed customized computer-adaptive diagnostic placement test

What We Learned
- Fewer students are placing in developmental courses each year

<table>
<thead>
<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2012</th>
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</thead>
<tbody>
<tr>
<td>81% Placed into Dev. Math</td>
<td>57% Placed into Dev. Math</td>
<td></td>
</tr>
<tr>
<td>Fall 2010</td>
<td>58% Placed into Dev. Eng.</td>
<td>42% Placed into Dev. Eng.</td>
</tr>
</tbody>
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- More students are enrolling in and completing gateway English and math courses within one year

<table>
<thead>
<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2012</th>
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<tbody>
<tr>
<td>8% of college-math placed students completed gateway math course within one year</td>
<td>18% of college-math placed students completed gateway math course within one year</td>
<td></td>
</tr>
<tr>
<td>Fall 2010</td>
<td>25% of college-English placed students completed ENG 111 within one year</td>
<td>48% of college-English placed or co-requisite English placed students completed English 111 within one year</td>
</tr>
</tbody>
</table>

- Giving students who place into developmental math the opportunity to take less math does not seem to be translating into students completing developmental math more quickly.
- Too few students are accelerating through math modules, especially those who place into lowest level modules.
- Only 13% of Fall 2012 FTIC students who placed in modules 1-5 had enrolled in a college-level math course by summer 2014.

Summary
- Gatekeeper course completion rates are higher for students who avoid developmental education altogether or who co-enroll in developmental and college.
- There are implications for expanding co-requisite opportunities to include math.
- Based on module completion data, it appears that the computer-assisted modular structure for students placing low in developmental math does not work.