The University of Arkansas received a five-year, $7,000,000 grant from the National Science Foundation to design and implement the College Ready in Mathematics and Physics Partnership. Other core partners are 38 school districts in Arkansas and Oklahoma, and the University of Arkansas - Fort Smith. The project began January 1, 2000.

The mission of the College Ready in Mathematics and Physics Partnership is to enhance mathematics and physics learning for all students in its partner districts and teacher-preparation programs in partner institutions, closing achievement gaps, and preparing students for success in college and careers. This will be achieved by building learning communities of 7-12 teachers and college faculty that foster and nurture smooth access to, productive disposition toward, and preparation for success in college.

College Ready envisions a system that supports and sustains delivery of high-quality 7-18 mathematics and physics education to all students in its targeted region of thirty-eight school districts in Arkansas and Oklahoma.

The overall goal is to smooth and support the successful transition of students from high school to college and to facilitate student's progress in attaining baccalaureate degrees. Ultimately, College Ready will impact student outcomes through increases in college remediation rates in mathematics, increase in student proficiency scores on state assessments, increased numbers of students enrolling in Advanced Placement (AP) mathematics and physics courses and receiving scores of 3 or better on AP exams, and increased graduation and college-going rates. In addition, the two core partners universities will build stronger and more productive teacher education programs in mathematics and physics.

College Ready will achieve these goals through a series of interdependent activities including vertical alignment of high school and college curriculums, intensive content-driven workshops, articulation conferences, university course revisions, the creation of professional learning communities, and the opportunity for teachers to earn advanced degrees and credentials.

Teachers participating in a mathematics or physics master teacher program receive:

- Three-year course of professional development.
- Stipends of $1,500 per 45-day vertical team institute.
- Additional support for workshops during the academic year.
- Travel and housing costs covered for the institutes.
- Six hours of meaningful technology professional development per year.
- Additional teachers can receive credit toward master degrees in physics or mathematics, and preparation toward National Board Certification.

Professional development opportunities offered each year include:

- AP Calculus, AB & BC workshops.
- AP Statistics workshops.
- AP Physics, B & C workshops (available as part of the physics master teacher series).
- Mathematics Master Teacher Series.
- Physics Master Teacher Series.
- Quantitative Literacy workshops.
- Vertical Teams workshops.

A workshop similar to Preparing Mathematicians to Educate Teachers (PMET) for college faculty will be offered twice over the five-year period.

Examples of Success Indicators

Goal 1: Increase student learning opportunities and examples of levels of achievement by promoting enrollment and successful completion of greater numbers of upper-level mathematics and physics courses, especially those that prepare students for success in college.

- Increased enrollment of high quality 7-12 mathematics and physics students in advanced mathematics and physics courses, including elimination of differences in course-taking completions by subgroups of students.
- Increase the number of students taking four years of high school mathematics.
- Increase the percentage of students receiving scores of 3 or better on AP exams.
- Increase the percent proficient on end of program testing of Master Teacher Workshop participants.
- Increase the percent proficient in end of program testing by 10 percentage points.
- Increase the number of students taking the AP Calculus AB and BC, AP Statistics, and AP Physics for subgroups of students.

Intensity: Mathematics and physics master courses and pedagogical practices and pedagogical practices and theory of learning to be used in all mathematics and physics courses, especially those that prepare students for success in college.

Objective: Increase the number of students taking four years of high school mathematics.

Activity: Increase the percent proficient in end of program testing by 10 percentage points.

Goal 3: Improve in-service mathematics and physics teachers’ knowledge of both content and pedagogy by expanding availability of and teacher participation in a professional development program organized around content-focused inquiry-based curricula.

- Increase the percent proficient in end of program testing by 10 percentage points.
- Increase the number of students taking the AP Calculus AB and BC, AP Statistics, and AP Physics for subgroups of students.
- Increase the number of students taking a year of high school physics.
- Increase the percent proficient in end of program testing by 10 percentage points.
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- Increase the percent proficient in end of program testing by 10 percentage points.

Intensity: Mathematics and physics master courses and pedagogical practices and pedagogical practices and theory of learning to be used in all mathematics and physics courses, especially those that prepare students for success in college.

Objective: Increase the number of students taking four years of high school mathematics.

Activity: Increase the percent proficient in end of program testing by 10 percentage points.

Goal 4: Institutionalise mathematics and physics program improvements by building and utilizing professional learning communities among teachers.

- Increase the percent proficient in end of program testing by 10 percentage points.
- Increase the percent proficient in end of program testing by 10 percentage points.

Intensity: Mathematics and physics master courses and pedagogical practices and pedagogical practices and theory of learning to be used in all mathematics and physics courses, especially those that prepare students for success in college.

Objective: Increase the number of students taking four years of high school mathematics.

Activity: Increase the percent proficient in end of program testing by 10 percentage points.

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Supporting Partners

American Physical Society (www.amphys.org)
American Association of Physics Teachers (www.aapt.org)
American Institute of Physics (www.aip.org)
American Physical Society (www.amphys.org)
American Society for Engineering Education (www.asee.org)
American Mathematical Society (www.ams.org)
Association of American Colleges and Universities (www.aacu.org)
Association of University Mathematics Departments (www.aumds.org)
Association of University Physics Departments (www.aupd.org)
Association for Industrial and Applied Mathematics (www.aimath.org)
Association for Women in Mathematics (www.associationforwomeninmathematics.org)
Association for Women in Science Education (www.awsee.org)
Association of Science and Mathematics Teachers of Color (www.amsatc.org)
Association of Women in Science Education (www.awsee.org)
Association of University Mathematics Departments (www.aumds.org)
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Association of Women in Science Education (www.awsee.org)
Association of Science and Mathematics Teachers of Color (www.amsatc.org)

Examples of Success Indicators

Goal 1: Increase student learning opportunities and examples of levels of achievement by promoting enrollment and successful completion of greater numbers of upper-level mathematics and physics courses, especially those that prepare students for success in college.

Examples include:

- Increased student enrollment and successful completion of upper-level mathematics and physics courses.
- Increased percentage of students receiving scores of 3 or better on AP exams.
- Increased proficiency scores on state assessments.
- Increased enrollment in Advanced Placement (AP) mathematics and physics courses.
- Increased completion rates of students in targeted programs.
- Increased graduation rates among participating students.

Objective: Increase the number of students taking four years of high school mathematics.

Activity: Increase the percent proficient in end of program testing by 10 percentage points.

Goal 3: Improve in-service mathematics and physics teachers’ knowledge of both content and pedagogy by expanding availability of and teacher participation in a professional development program organized around content-focused inquiry-based curricula.

Examples include:

- Increased teachers’ knowledge of and proficiency in content-specific teaching strategies.
- Increased teacher participation in professional development workshops and institutes.
- Increased teacher effectiveness in delivering content-specific instruction.
- Increased student achievement on state assessments.

Objective: Increase the number of students taking four years of high school mathematics.

Activity: Increase the percent proficient in end of program testing by 10 percentage points.

Goal 4: Institutionalise mathematics and physics program improvements by building and utilizing professional learning communities among teachers.

Examples include:

- Increased collaboration and communication among mathematics and physics teachers.
- Increased teacher participation in professional development opportunities.
- Increased implementation of evidence-based teaching practices.
- Increased student engagement and motivation in mathematics and physics courses.

Objective: Increase the number of students taking four years of high school mathematics.

Activity: Increase the percent proficient in end of program testing by 10 percentage points.

Title of the College Ready goals are highlighted in this text. Each goal has 4-6 indicators. One example outcome is shown for each.