



What's Happening

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The implementation of dual credit programs in six nonurban Kentucky school districts

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Key findings

- Implementation of dual credit programs varies widely across and within districts in the number and type of courses available and in costs to students.
- Each district partners with two or more postsecondary institutions to offer the desired dual credit programs and courses.
- The most common configuration involves dual credit courses offered at a high school and taught by high school teachers with the credentials to teach such courses.
- Barriers to expanding dual credit programs in the six districts include the limited availability of high school teachers with appropriate credentials, limited access to courses and instructors in isolated rural districts, financial burden for students and families, and lack of dedicated staff to manage dual credit programs.
- Dual credit programs enable high school students to earn college credit at reduced cost, but the financial burden on students varies across school districts and program configurations.

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Summary

The nationwide emphasis on college and career readiness has led to an increase in dual credit programs that allow students to take college courses while still in high school. Following national trends, Kentucky has made college and career readiness the primary goal of its public education system. Senate Bill 1, passed in 2009, charged the Kentucky Department of Education and the Kentucky Council on Postsecondary Education with developing a unified strategy to reduce the need for college remediation and increase the rate at which students obtain a postsecondary degree (Kentucky Department of Education & Kentucky Council on Postsecondary Education, 2010). A key strategy in the resulting College and Career Readiness Delivery Plan is to provide opportunities for high school students to earn college credit (Kentucky Department of Education, 2013).

Noting Kentucky's policy environment encouraging expansion of dual credit programs, members of Regional Educational Laboratory (REL) Appalachia's Kentucky College and Career Readiness Alliance voiced a need for more information about dual credit practices. Alliance members expressed particular interest in how such programs are implemented, especially in nonurban districts (that is, rural and suburban districts), which constitute the majority of districts within the alliance. A complementary REL Appalachia study examined statewide participation and completion rates in dual enrollment courses for Kentucky students in order to provide information about the extent of dual enrollment programs and further inform decisions (Lochmiller, Sugimoto, Muller, Mosier, & Williamson, 2016).

To address the need for information sharing and for more information on implementation in nonurban districts, this study examined dual credit programs in six nonurban school districts in Kentucky. The study team compiled profiles of each district that describe dual credit program policies and practices, student participation, partner postsecondary institutions, course offerings, course location and scheduling, instructors and credentialing, student supports, quality assurance, program costs and funding, and successes and challenges. The profiles were based on 45 phone interviews conducted across seven stakeholder groups and on a review of documents related to the dual credit programs in the six districts.

This study yielded several findings pertaining to dual credit programs and preferences, including:

- Dual credit programs are an important feature of college readiness efforts in all six districts in the study.
- Program implementation varies in program configuration, course offerings, student supports, and cost both across schools within a district and across districts in the study.
- Each district partners with at least one two-year and one four-year postsecondary institution to offer dual credit programs and courses.
- The most common program configuration is one in which dual credit courses are offered at a high school and taught by high school teachers with the credentials to teach such courses.
- Dual credit programs provide students the opportunity to earn college credit at reduced cost, but student costs and funding support vary by district, partner postsecondary institution, and program configuration.
- Facilitators of program implementation include having dedicated staff at postsecondary institutions to manage dual credit programs, positive relations and

communication between district and postsecondary staff, and geographic proximity to postsecondary institutions.

- Key challenges include limited availability of high school teachers with appropriate credentials, limited access to courses and instructors in isolated rural districts, limited student readiness for college coursework, financial burden for students and families, inconsistent standards for ensuring course quality, and lack of dedicated staff to manage dual credit programs.

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Why this study?

A key strategy to promote college and career readiness is to provide high school students the opportunity to participate in dual credit courses, which allow them to earn college credit while still in high school. The nationwide emphasis on college and career readiness has led to a marked increase in availability of and participation in dual credit programs (Higher Learning Commission, 2013; Klopfenstein & Lively, 2012; Marken, Gray, & Lewis, 2013; Thomas, Marken, Gray, & Lewis, 2013). Originally intended as a rigorous course option for high academic achievers, dual credit programs have expanded in recent years to serve a wider range of students based on growing evidence that participation in these programs increases college enrollment among students who would not otherwise attend college (Barnett & Stamm, 2010; Hofmann, 2012). The presumption is that dual credit programs increase postsecondary enrollment and success by improving academic readiness (Barnett & Stamm, 2010; Community College Research Center, 2012), preparing students for the psychological and social demands of college (such as developing time management skills and new kinds of social relationships; Karp, 2012), and lowering the cost of postsecondary education (High School Leadership Summit, 2004).

A key strategy to promote college and career readiness is to provide high school students the opportunity to participate in dual credit courses, which allow them to earn college credit while still in high school

With the growth in dual credit programs, policymakers and researchers have expressed concerns about such issues as quality assurance and inconsistency in practices within states (Higher Learning Commission, 2013). Unlike College Board Advanced Placement courses, which follow a standardized curriculum, dual credit courses are not standardized and have little oversight (Klopfenstein & Lively, 2012; Speroni, 2011). Numerous researchers have thus called for additional study of dual credit programs, practices, and impacts (An, 2013; D'Amico, Morgan, Robertson, & Rivers, 2013; Howley, Howley, Howley, & Duncan, 2013; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007).

Following national trends, Kentucky has made college and career readiness the primary goal of its public education system. Legislation passed in 2009 focused on reducing the need for college remediation and increasing the rate at which students obtain a postsecondary degree. The Kentucky Department of Education's (2013) College and Career Readiness Delivery Plan, designed to increase the percentage of students statewide who are college and career ready, includes the strategy of providing opportunities for high school students to earn college credit.

Members of Regional Educational Laboratory (REL) Appalachia's Kentucky College and Career Readiness Alliance—which comprises representatives from the Kentucky Department of Education, the Kentucky Council on Postsecondary Education, and seven regional education cooperatives serving 147 mostly rural school districts—report that state policies have led virtually all districts to implement dual credit programs. Yet alliance members observe that there is little sharing of information about the programs among districts or by the state. This exploratory study was thus designed in partnership with alliance members to provide information about how dual credit programs are implemented in districts within the alliance. In particular, the study explored how districts address the challenges related to dual credit administration in a nonurban context. A complementary REL Appalachia study examined statewide participation and completion rates in dual enrollment courses in order to better understand student, course, and school characteristics for dual enrollment in Kentucky (Lochmiller et al., 2016).

This study is the first systematic investigation of dual credit policies and practices in Kentucky College and Career Readiness Alliance member districts (for example, specifying what makes students eligible to participate, how they are recruited, how courses are offered, whether practices align with state policies, how barriers are overcome). The knowledge gained is expected to inform policymakers about stakeholders' perspectives on dual credit program successes as well as challenges to implementation that might be addressed through policy action. In addition, district leaders may use the findings to inform their own efforts to enhance and expand dual credit programs. Findings specific to the five districts in the study that are rural (the sixth is suburban) are especially relevant in Kentucky, where 55 percent of districts are designated as rural.¹ Box 1 defines key terms relevant to dual credit programs in Kentucky.

What the study examined

This study answers the following questions on dual credit programs and how they are implemented in six nonurban Kentucky school districts in three regions of the state (west, central, and east) that were selected in consultation with Kentucky College and Career Readiness Alliance representatives:

- How are dual credit programs implemented? How do the districts differ in implementation, and how are they similar?
 - What are dual credit participation policies and practices (including eligibility, recruitment, and enrollment)?
 - Which types of postsecondary institutions offer these courses?
 - What types of courses are offered in these programs, and how are courses selected?
 - How, when, and where are courses scheduled?
 - Who teaches the courses, and how are the instructors selected and credentialed?
 - What student supports are offered?
 - How do districts, high schools, postsecondary institutions, and state agencies assess and ensure program quality?

This study is the first systematic investigation of dual credit policies and practices in Kentucky College and Career Readiness Alliance member districts and can inform policymakers about stakeholders' perspectives on dual credit program successes and challenges to implementation

Box 1. Key terms

Community and technical college. A public, two-year postsecondary institution that is part of the Kentucky Community and Technical College System. This type of college offers both general education and career and technical education courses.

Dual credit program. A type of dual enrollment program in which the student receives course credit from both the high school and the postsecondary institution for the same course.

Dual enrollment program. A program in which a high school student is simultaneously enrolled at a high school and a postsecondary institution and receives credit for a course from only the postsecondary institution or from both the high school and the postsecondary institution.

Early college program. A type of dual credit program in which the high school and postsecondary institution partner to offer high school students the opportunity to graduate high school with an associate degree or one to two years of college credit (Barnett & Stamm, 2010).

Singleton program. A type of dual credit program in which students take college-level courses at their discretion in no particular order or sequence (Barnett & Stamm, 2010).

- What costs are associated with taking a dual credit course, and who pays them? What funding is available for dual credit programs and participants?
- What successes and challenges in implementing dual credit programs have the districts experienced, and what strategies have they used to facilitate success or address challenges?

This report focuses on dual credit programs and interviews with school and district staff focused primarily on general education programs

Data collection methods are summarized in box 2 and described in detail in appendix A. The study team initially intended to gather information on both dual enrollment and dual credit programs. However, staff in the six districts provided information primarily on dual credit programs and reported that students seek out and enroll in dual enrollment courses on their own initiative rather than working through school counselors. Thus, this report focuses on dual credit programs.

In addition, interviews with school and district staff focused primarily on general education programs. The staff acknowledged that career and technical education dual credit programs are an important part of the dual credit experience for many students in the six districts² but noted that career and technical education programs are implemented and managed primarily through area technology centers serving multiple school districts. Because the study collected data primarily at the district level, findings in this report focus on general education dual credit programs.

Box 2. Data collection methods

The study collected data primarily through phone interviews with representatives of seven key stakeholder groups: district administrators, postsecondary institution administrators, high school administrators, state education agency administrators, administrators at collaborating organizations directly involved in developing dual credit policies and programs, course instructors at postsecondary institutions, and course instructors at high schools. Because the stakeholder groups were expected to report distinctly different information and perspectives, a different interview protocol was constructed for each group.

The study team conducted multiple interviews in districts where more than one person in a stakeholder group acted as a key informant about the district's dual credit policies and programs (see appendix B). A total of 45 people were interviewed: eight district administrators, seven postsecondary institution administrators (representing seven institutions), nine high school administrators, four state education agency administrators, three representatives from other collaborating organizations, six course instructors at postsecondary institutions (representing six institutions), and eight course instructors at high schools.

The study team also reviewed extant documents related to the dual credit programs in the six districts, gathered from a variety of sources.

The six districts were chosen using purposeful, maximum variation sampling to select information-rich districts for in-depth study. This sampling method seeks to identify a range of settings that reflects all or most types of settings of interest in the inquiry (Onwuegbuzie & Leech, 2007)—in this case geographic location and district size, two factors that Kentucky College and Career Readiness Alliance members indicated might be responsible for variation in dual credit programs related to access and capacity.

To ensure confidentiality, this report does not provide the names of the three regional cooperatives, six districts, and 14 high schools or the state agencies, postsecondary institutions, and individuals covered by the study's interviews and document collection. Aggregate descriptive information is carefully limited to avoid inadvertent identification of the six districts.

Appendix A provides more details on the study methodology.

Box 3. About the six participating districts

Geographically, two districts each are located in western, central, and eastern Kentucky (see table). The six districts are considered nonurban based on locale codes assigned by the National Center for Education Statistics. The locales of the six districts, five of which are rural and one suburban, reflect some of the variation in the state's school districts, which are primarily rural, town, and suburban.

The six participating districts vary on several other factors. The number of high schools ranges from one to four, with total high school (grades 9–12) enrollment ranging from 300 to 4,000 (see table). In all districts the share of the student population that is White ranges from 75 percent to 100 percent. More than half of students in all districts are eligible for free or reduced-price lunch (50–90 percent). Average ACT composite score ranges from 17 to 20. The six districts also vary in percentages of students meeting college and career readiness indicators (see table). For instance, the percentage of students attending college after graduation ranged from 20 percent to 60 percent in 2012/13. Kentucky College and Career Readiness Alliance members indicated that the factors outlined above are likely to influence dual credit program structure and participation, and expressed interest in knowing how districts in these varying contexts approached dual credit programs.

Demographic characteristics and college and career readiness indicators of the six participating districts, 2013/14

	Kentucky	District 1	District 2	District 3	District 4	District 5	District 6
Location and demographic characteristics							
Region	na	West	West	East	East	Central	Central
Locale ^a	na	Rural fringe	Rural distant	Rural distant	Rural remote	Suburb large	Rural distant
Number of high schools	na	4	1	4	1	3	1
PreK–12 enrollment	na	14,000	2,300	6,000	700	13,000	2,100
High school (grades 9–12) enrollment	na	4,000	700	1,900	300	3,800	600
Share of the student population that is White (percent)	80	75	95	100	100	95	95
Share of the student population eligible for free or reduced-price lunch (percent)	58	55	65	75	90	50	55
College and career readiness indicators							
Average ACT composite score	19	20	18	18	17	19	19
Share of students meeting reading and math proficiency ^b (percent)	47	50	60	40	25	45	40
Four-year adjusted cohort graduation rate ^c (percent)	88	95	95	90	90	85	95
Share of graduates meeting college and career readiness benchmark scores ^d (percent)	63	65	50	70	60	55	65
Share of students attending college ^e (percent)	55	50	35	60	20	40	50

na is not applicable.

Note: All district percentages are rounded to the nearest 5 percent to protect anonymity.

a. National Center for Education Statistics locale codes are measures of geographic status on an urban continuum ranging from large city to rural. Codes in the table fall on the continuum from most to least urban as follows: suburb large, rural fringe, rural distant, rural remote. See <http://nces.ed.gov/ccd/commonfiles/localedescription.asp> for definitions.

b. The combined percentage of students scoring proficient or higher in reading and math on end-of-course exams for Algebra II and English II.

c. The number of students who graduate in four years with a regular high school diploma divided by the number of students who entered high school four years earlier, adjusting for students who transfer in and out, emigrate to another country, or die.

d. Percentage of graduates meeting specific college readiness benchmarks on a combination of ACT, ACT Compass, and Kentucky Online Testing exams or career readiness benchmarks on a combination of the Armed Services Vocational Aptitude Battery, WorkKeys, and Kentucky Occupational Skills Standards Assessment exams or via industry certifications.

e. The percentage of students attending college in the fall following high school graduation. Data are for 2012/13 because of the time required for source agencies to collect and process college enrollment data.

Source: Kentucky School Report Cards (<https://applications.education.ky.gov/src>) and National Center for Education Statistics, Common Core of Data.

What the study found

Findings across the six districts pertain to program configuration, student eligibility, high school and postsecondary partnerships, course offerings, course location, course instructors, student supports, quality assurance, costs, and successes and challenges. The district profiles in appendix C describe each district's dual credit programs in detail.

All districts offer a singleton program; half offer an early college program

Interviewees described a variety of general education dual credit programs across and within the six districts. For simplicity, these programs are grouped into two dual credit configurations described by Barnett and Stamm (2010): singletons and early college. As is true nationwide (Barnett & Stamm, 2010), the most common configuration—offered in all six districts—is a singleton program in which students take college-level courses at their discretion in no particular order or sequence, often with little support offered beyond that available to any college student. Three districts also offer an early college program, defined by Barnett and Stamm (2010) as a high school–postsecondary institution partnership in which students fulfill college-level general education requirements, earning an associate degree or one or two years of college credit. These early college configurations are typically open to students in grades 11 and 12.

One district offers an early college program in the form of a four-year math and science academy in which students in grades 9 and 10 take accelerated courses taught by community and technical college faculty at the high school and then attend courses at the college for grades 11 and 12.

Participants are primarily academically eligible students in grades 11 and 12

In each district, administrators reported that dual credit programs offer opportunities for all students to participate and that staff make dual credit information available to all students. Five districts promote dual credit courses to all students beginning in grade 9 to help with future course planning; one district begins sharing this information in grade 7. In three districts schools host family nights to share information on dual credit programs, and in two additional districts the district itself shares such information at other family events. In two districts counselors make classroom visits to share dual credit information; in one of these districts, counselors also share information during individual student advising sessions.

Even though district administrators reported a desire to make dual credit programs available to all students, not all students are able to participate. Students must meet program eligibility requirements established by the state, districts, and postsecondary institutions. By state policy, dual credit courses are offered primarily to students in grades 11 and 12 across the six districts, with exceptions made for students in grades 9 and 10 who are recommended by teachers or counselors. One district created a four-year dual credit math and science academy targeted specifically to high academic achievers in grades 9–12.

Participating postsecondary institutions also impose eligibility requirements that students must meet to enroll in a dual credit program. These include minimum scores on standardized assessments such as the ACT, ACT Compass, and the Kentucky Online Testing

The most common dual credit program configuration—offered in all six districts—is a singleton program in which students take college-level courses at their discretion in no particular order or sequence, often with little support offered beyond that available to any college student

set by state and Kentucky Community and Technical College System policies. All six districts follow state guidelines, which require high school students wishing to enroll in a dual credit course to have a grade point average of at least 3.0 and to meet the same college-ready benchmarks as traditional college students—that is, an 18 or higher ACT composite score, an 18 or higher ACT English score, and a 19 or higher ACT math score. State guidelines set higher benchmarks for specific courses, such as college algebra, which requires an ACT math score of 22 or higher, and calculus, which requires an ACT math score of 27 or higher.

Postsecondary institutions may establish additional criteria above those in the state guidelines for specific courses, which must be met by all students (dual credit or traditional). For instance, a community and technical college serving two study districts requires an ACT reading score of 20 or higher or an ACT Compass score of 85 or higher for introductory courses in public speaking, psychology, and computer science. A four-year postsecondary institution serving two study districts requires students to take a math placement exam to ensure that they are prepared for college algebra.

High schools or districts can also impose eligibility requirements. One school requires students enrolling in a dual credit world civilization or U.S. history course to have a Scholastic Reading Inventory Lexile score of 1050–1300 or a PLAN or ACT reading score of 17. This requirement was added after instructors observed many students struggling with the reading material.

To participate in dual credit programs, students must meet program eligibility requirements established by the state, districts, and postsecondary institutions

Administration and management structures for programs vary widely across the high school, district, and postsecondary levels

The six districts partner with multiple postsecondary institutions to provide dual credit opportunities. Each district partners with at least one community and technical college and one public four-year postsecondary institution.

Formal partnership agreements vary by postsecondary institution and district. Most postsecondary institutions have dual credit program offices with staff responsible for program management. These staff play a number of roles, from speaking at open house events to serving as the primary point of contact for students to facilitating communication with faculty. In two districts interviewees reported that some postsecondary institutions that lack dedicated dual credit staff positions are not well organized, show limited interest in the program, and do not communicate effectively.

Similarly, management structure of dual credit programs varies at the district level, with district administrators, high school principals, and counselors taking primary responsibility for designing, implementing, and refining dual credit programs and course offerings. Administrators at a four-year postsecondary institution reported that the quality of dual credit program management varies across the districts and schools they serve, depending largely on the particular district or school staff managing the program.

The institution responsible for initiating dual credit programs also varies widely. In one district, high school counselors are largely responsible for initiating, implementing, and expanding dual credit programs. In another district, central office staff lead the effort but are working to get the high school to take more ownership. A third district established

its program relatively recently when postsecondary institution staff approached the high school; district and school staff play a minimal role in program management. Postsecondary institution dual credit program administrators reported initiating dual credit programs based on a desire to establish partnerships with K–12 institutions and described the partnerships as contributing to their institutions’ outreach efforts, smoothing the transition between high school and college, and serving as a recruitment tool.

Some programs offer an integrated curriculum leading to specific credentials, while other programs have less coherent agendas

The number and type of courses offered by the six districts vary depending on several factors, including proximity to postsecondary institutions, availability of credentialed instructors, availability and interest of district and postsecondary institution staff to lead and manage programs, and the particular dual credit program configuration. In early college programs offered by three of the six districts, course offerings provide students an integrated curriculum leading to specific credit-hour goals (12 credit hours each year for two years) or academic credentials (an associate degree). Occasionally, students in these programs take additional dual credit courses outside the standard course list set by the program, with the permission of the postsecondary institution’s dual credit program administrator.

In early college programs offered by three of the six districts, course offerings provide students an integrated curriculum leading to specific credit-hour goals or academic credentials

Outside of early college programs, each district at a minimum offers an English/language arts course and a math course that fulfills typical general education requirements in those content areas. The number of courses ranges from 8 to more than 40. A small rural district offers eight courses, driven primarily by what each partner postsecondary institution provides. In a larger district located near two partner postsecondary institutions, the number of courses offered across four high schools ranges from 11 to 28 and includes basic requirements as well as electives. This finding supports Kentucky College and Career Readiness Alliance members’ expectations that district size and geographic location influence the capacity to deliver dual credit programs.

In the three districts with more than one high school, dual credit courses taught at the high schools vary according to teachers’ credentials. All six districts would like to offer additional dual credit courses but do not have high school teachers who meet the certification requirements in the desired academic areas.

Geographic proximity to postsecondary institutions facilitates program implementation

In five of the six districts, most dual credit courses are taught at the high schools by credentialed high school teachers. At least a few online courses (hybrid and fully online) are available to students in all districts but are used much less often than in-person courses. Two districts offer online courses at the high school site monitored by proctors, whereas other districts permit students to take online courses on their own time or during their free periods at the high school.

Geographic proximity to postsecondary institutions allows school districts to offer a greater variety of program configurations. For instance, each of the three districts that offer an early college program is located within a few miles of a main or satellite campus of a community and technical college, allowing students to attend courses at the college;

two of those districts provide bus transportation. Students in the early college programs take dual credit courses at the postsecondary institution during the day—part-time or full-time, depending on the program schedule. The courses may include regular postsecondary students or may be designated specifically for high school students.

Geographic proximity also facilitates the ability to offer individual dual credit courses. In one district that lacks an early college program, students may enroll in a selection of courses held at the nearby community and technical college or at a satellite campus of a four-year postsecondary institution. Some of these courses are for high school students only, and others include high school students and regular college students.

Finally, geographic proximity influences student opportunities to take dual credit courses on college campuses. In the two small rural districts that are geographically isolated from postsecondary institutions, students take courses primarily at the high school during the regular school day. The courses are taught by credentialed high school teachers and district administrators or by adjunct faculty from the community.

Administrators report that more dual credit instructors are needed to meet demand

Administrators in all six districts describe the availability of credentialed high school teachers as a challenge—limiting dual credit program configurations, the range of course offerings, and student access to courses. This challenge is important to highlight because in five of the six districts, most dual credit courses are taught at the high school by credentialed high school teachers. All six districts would like to offer additional general education dual credit courses at their high schools but lack credentialed high school teachers, district staff members, adjunct faculty, or nearby postsecondary institution faculty who can teach the courses.

All six districts would like to offer additional general education dual credit courses at their high schools but lack credentialed high school teachers, district staff members, adjunct faculty, or nearby postsecondary institution faculty who can teach the courses

To teach general education dual credit courses, instructors must meet the state requirement of a master's degree in the content area to be taught or a master's degree in any area with at least 18 graduate credit hours in the content area to be taught. Each postsecondary institution in this study requires potential dual credit instructors to submit a formal application, which may include a letter of interest, résumé, sample lessons and student work, professional recommendations, and college transcripts. Each postsecondary institution then reviews and approves applicants based on the institution's and state's guidelines.

Partner postsecondary institutions serving three districts address this challenge by offering tuition discounts and scholarships to interested high school teachers who wish to complete graduate courses to meet dual credit certification requirements.

Student supports vary by program and course location

Research suggests that establishing student support systems before and during participation in dual credit courses contributes to student success, particularly for low- and middle-achieving students (Barnett & Stamm, 2010). Three districts have built supports into early college programs. Two districts provide transportation to postsecondary institutions for students enrolled in the early college programs. The district with a four-year math and science academy includes an academic success course that meets twice weekly for 75 minutes per session. The course helps students learn college study skills and note taking,

provides information about the college enrollment process, and includes visits to college campuses. In three districts students in early college programs benefit from postsecondary dual credit instructors who have experience teaching high school students and who understand their particular social and academic needs.

Consistent with Barnett and Stamm's (2010) description of singleton courses, interviewees reported that students taking singleton courses receive almost no tailored support but may use counseling and academic supports at their high school or postsecondary institution. For instance, students enrolled in on-campus dual credit courses may access postsecondary institutions' academic advising and career planning, tutoring services, and other student services facilities and offices. In three districts students enrolled in dual credit courses at the high school can access support services through the postsecondary institution; however, students more often seek more familiar and easily accessible support from their course instructors and high school counselors to navigate the dual credit program requirements and to adapt to college-level academic expectations. One district schedules an extra study hall period each week for students in dual credit courses taught at the high school, depending on course scheduling.

Quality assurance is limited and varied

Quality assurance is a concern noted in the research on dual credit programs because of their decentralized nature (Klopfenstein & Lively, 2012). Most states address quality assurance concerns through student eligibility, instructor credentials, and curriculum design requirements (Higher Learning Commission, 2013). The Kentucky Council on Postsecondary Education's (2012) dual credit policy charges postsecondary institutions with ensuring that all dual credit courses are of comparable quality and meet the same student learning outcomes as equivalent regular postsecondary courses.

To promote course consistency and instructional quality of dual credit courses taught at high schools, postsecondary institutions that partner with the six districts require instructors to use syllabi and course materials approved by the postsecondary institutions' academic departments for its regular courses. One postsecondary institution permits high school teachers and adjunct faculty members who serve as dual credit instructors to revise syllabi, but they must submit revisions to the postsecondary academic administrator or department chair for approval. High school dual credit instructors across districts are expected to institute college-level expectations for attendance, classroom participation, student behavior, and academic standards.

Departmental course evaluation processes, such as end-of-course student surveys, are used to evaluate dual credit courses taught at the postsecondary institutions, in line with Kentucky Council on Postsecondary Education (2012) policy. Beyond this requirement, monitoring of dual credit course quality varies by postsecondary institution. Postsecondary institutions serving four districts reported that program administrators are supposed to observe dual credit courses annually but that implementation of this requirement is inconsistent in two districts. At the same time, some dual credit programs have additional evaluation measures in place. A four-year postsecondary institution that partners with one district requires postsecondary academic departments to support high school course instructors. In another district a few dual credit courses use course management software that allows the academic departments at the partner postsecondary institution to monitor instructors' grading of homework and tests to ensure consistency across course sections.

To promote course consistency and instructional quality of dual credit courses taught at high schools, postsecondary institutions that partner with the six districts require instructors to use syllabi and course materials approved for its regular courses

Dual credit programs offer substantial tuition discounts, but costs and funding support vary widely

Dual credit programs in all six districts enable students to obtain college credit at substantially reduced rates relative to the cost for traditional college students. However, discounts vary by institution, by the agreements between districts and institutions, and by the programs in place to help students and their families pay tuition and fees.

The state has a fixed pricing structure for dual credit courses offered by community and technical colleges at local high schools. When the course is taught by a high school teacher, students pay no tuition but must pay a per semester administrative fee to the college (\$50 at the time this study was conducted). When the course is taught by a postsecondary instructor, students receive a 50 percent tuition waiver. This suggests that students taking dual credit courses at their high school pay more for courses taught by a postsecondary instructor than for those taught by a high school teacher. In reality, interviewees indicated no such distinction. They reported that students taking community and technical college courses at their high schools pay only the \$50 administrative fee, regardless of the number of courses they take each semester or who teaches the course.

Five districts subsidize all or part of dual credit tuition and fees; one district does not

Beyond this pricing structure there is a vast array of costs and funding supports, depending on the district, school, postsecondary institution, and program configuration. In general, dual credit courses offered through community and technical colleges are less expensive than those offered through four-year postsecondary institutions, but there are exceptions. In two districts served by the same four-year postsecondary institution during the 2013/14 school year, students paid \$210 for a three-credit course (discounted from approximately \$1,000 per three-credit course for traditional college students). In a third district the district pays a \$60 fee for each student enrolled in the single math course offered by a four-year postsecondary institution, and students do not pay any tuition or fees. For courses offered by this district's other four-year partner postsecondary institution, the district pays a per course, per semester fee for an unlimited number of students to enroll in courses.

In addition to variation in program costs, funding supports and subsidies also vary widely across districts, postsecondary institutions, and program configurations, making it impossible to estimate an average cost per student in each district. Five districts subsidize all or part of dual credit tuition and fees; one district does not. In one district, students pay all costs associated with two of the early college programs, although the community and technical college provides tuition discounts of approximately 50 percent for the first three credit hours per semester. In contrast, the district pays all tuition costs for the four-year math and science academy offered through the same college (for which the college discounts the first six credits of tuition by 50 percent and charges the full tuition cost per semester for all remaining credits). Additional details are provided in appendix C.

In the two districts that serve the highest percentage of students eligible for free or reduced-price lunch, the district subsidizes a large portion of the costs associated with enrolling in dual credit courses held at the high school, including those for tuition, fees, and textbooks. Two postsecondary institutions serving three of the study districts have created scholarships for students with financial need to assist in covering tuition, fees, and course materials. In one district, community organizations and foundation grants provide funds that the district uses to assist students with financial need.

Administrators in all six districts reported urging eligible students to apply for the state-wide Mary Jo Young Scholarship, administered through the Kentucky Higher Education Assistance Authority. The scholarship is available to students in grades 11 and 12 with an ACT composite score of 18 or higher and a grade point average of 2.5 or higher who are enrolled in a dual credit course at a Kentucky college. The renewable scholarship provides up to \$420 for one course or \$840 for two courses a year and reimbursement of textbook costs of up to \$125 for one course or \$250 for two courses a year.

Even with discounts, waivers, scholarships, and other supplemental funding sources to assist students and their families in subsidizing dual credit costs, administrators in three districts identified cost as a barrier to student access to dual credit programs and to expanding programming to serve more diverse student populations.

Districts and postsecondary institutions confront challenges to dual credit programs

Numerous challenges to dual credit program implementation were reported, and districts and postsecondary partners are addressing these challenges in a variety of ways.

More credentialed instructors are needed to meet demand. One challenge to dual credit program implementation in all six districts is the limited availability of credentialed dual credit instructors. Administrators in the three isolated rural districts reported that it was especially challenging to find credentialed instructors. They noted that the distance from postsecondary institutions limits the availability of high school teachers to earn additional certification and for postsecondary instructors to travel to high schools. Also, distance inhibits the ability of students to take courses on the college campus. Most postsecondary institutions serving the three districts provide online courses, but the courses do not seem to have met the demand for dual credit courses. Postsecondary institutions serving three districts are addressing the instructor shortage by offering scholarships or tuition discounts to interested high school teachers to acquire the necessary credentials. A fourth district uses funds from a federal grant to reimburse high school teachers' tuition costs; that district also offers a \$500 stipend for teaching a dual credit course. A program administrator from a postsecondary institution serving a fifth district reported encouraging high school teachers to obtain their graduate degrees in a content area rather than in administration or counseling so they would have the 18 hours of content-focused graduate work required to teach dual credit courses.

Students' academic preparedness limits program expansion. While administrators in all six districts expressed a desire to offer dual credit opportunities to all students, some course instructors and administrators in three districts identified lack of student readiness for college coursework as a barrier to expanded participation. One district addressed this challenge by encouraging students to take the ACT in grades 9 and 10 so that areas of weakness might be identified and remediated early in their high school career.

Despite reduced prices, costs to students remain inhibitive. Cost was identified as a challenge in three districts, especially for middle-income students and those wishing to take courses at more expensive four-year postsecondary institutions. Costs are offset in various ways by districts, schools, and postsecondary institutions. Two districts subsidize all or part of the tuition for their early college programs but not for singleton courses. The two districts with the highest percentage of students eligible for free or reduced-price

While administrators in all six districts expressed a desire to offer dual credit opportunities to all students, some course instructors and administrators in three districts identified lack of student readiness for college coursework as a barrier to expanded participation

lunch subsidize dual credit costs heavily; one incorporates dual credit scholarships into all grants sought by the district. Counselors in a district that offers no subsidies raise money in various ways to offer scholarships to low-income students. Another postsecondary institution serving two districts provides a scholarship fund for each school, supported by tuition paid for dual credit courses taught at high schools by high school teachers. Because the postsecondary institution does not pay for instructors or classrooms, it sets aside \$50 per student enrolled in such courses, which high schools can use to provide scholarships.

Quality assurance procedures vary by institution. Quality assurance is another challenge, as postsecondary institutions implement different procedures with varied consistency. Variation in quality assurance procedures raises concerns at both the high school and postsecondary levels about whether dual credit courses uniformly reflect the expectations and content of regular college courses—but interviewees suggested no solutions.

Small administrative staffs present management and communication challenges. In general, interviewees reported positive relationships among districts, schools, and postsecondary institutions, but interviewees in two districts noted challenges related to program management. Administrators reported that having dedicated staff positions, at either the postsecondary or high school level, to manage programs facilitates those programs by establishing relationships that enhance communication and problem solving around logistical challenges. However, not all schools or postsecondary institutions have such staff. Administrators in one district, as well as administrators at its partner postsecondary institutions, expressed concern that as more students enroll in dual credit courses, more staff will be needed to manage the work.

Variation in quality assurance procedures raises concerns at both the high school and postsecondary levels about whether dual credit courses uniformly reflect the expectations and content of regular college courses

Despite these challenges, interviewees also reported several positive outcomes for their programs. Interviewees across the six districts and the partner postsecondary institutions agreed that a major outcome of dual credit programs is that they offer an increasing number of students the opportunity to earn college credit at a reduced cost while transitioning to college-level expectations. Interviewees in three districts reported that dual credit courses raise academic expectations and rigor at the high school level, while interviewees in two other districts suggested that students who participate in dual credit programs improve on college readiness indicators or have a higher success rate in college.

Implications of the study findings

This study provides descriptive information about key features of dual credit programs in six nonurban (rural and suburban) districts. It reveals that dual credit programs are a central feature of the six districts' college and career readiness efforts and that practices vary widely both across and within districts. The programs are generally viewed as a positive opportunity for students to earn college credit at reduced cost and to assist students in the transition to college-level expectations. Administrators across districts expressed a desire to make dual credit courses accessible to all students. However, the desire to expand access is undermined by such barriers as not having enough credentialed instructors.

As Kentucky seeks to expand dual credit programs, this study's findings indicate that creative solutions may be needed to address challenges related to:

- Increasing the number of instructors credentialed to teach dual credit courses.
- Increasing access to dual credit opportunities, especially in remote, rural locations.
- Ensuring student readiness for college coursework.

- Making dual credit programs affordable for all eligible students across the state.
- Ensuring course quality.
- Providing enough dedicated staff to effectively manage dual credit programs.

The information provided by this study may be used by Kentucky College and Career Readiness Alliance members, practitioners in the states served by REL Appalachia, and national practitioners to enhance, expand, or refine their own dual credit programs and policies. Alliance members may use the findings from this study to inform conversations and decisions about dual credit programs in their regions. School and district educators and postsecondary institutions will have examples of the variety of dual credit programming options used in nonurban districts. Regional and state administrators will have evidence of the challenges with dual credit programs that districts have experienced and the districts' strategies for addressing them.

Limitations of the study

The sample of six districts selected for the study is not intended to be statistically representative of Kentucky or the other states that make up the REL Appalachia Region. Nor does this study design allow for a description of all dual credit programs (or the postsecondary institutions that offer such programs) in Kentucky or in the geographic regions covered by the Kentucky College and Career Readiness Alliance. With a limited, purposeful sample of stakeholder interview participants and a limited number of documents readily available to collect and analyze, the study does not capture all possible perspectives, experiences, or nuances of dual credit programs in each district's profile (see appendix B for interview questions and appendix C for district profiles).

The study's focus on dual credit program characteristics and practices of the greatest interest to Kentucky College and Career Readiness Alliance members means that some elements of dual credit programs and implementation strategies are not fully captured. However, because the areas of interest identified by the alliance closely align with the key topics identified in the research literature, the study's findings may be of interest to education researchers, policymakers, and practitioners more widely.

The study does not explore in depth the extent to which postsecondary institutions accept the college credits earned by high school students. Interview data suggest that the postsecondary institutions that offer the courses accept the credits if students enroll at their institutions after high school graduation. However, the study does not explore this issue for a wider spectrum of postsecondary institutions, such as those outside of Kentucky.

Another limitation derives from the nature of the data provided by the six districts. Because the study's focus is at the district level, and district and high school educators are responsible for general education dual credit courses, the study does not examine career and technical dual credit opportunities, which are implemented primarily through area technology centers serving multiple districts, beyond information volunteered by a few district administrators familiar with those programs. In addition, districts provided information on dual credit programs rather than on dual enrollment opportunities that students may seek out on their own. Finally, the quality and nature of data provided to the study team varied across districts, limiting its ability to address all research questions fully. For instance, only one district provided complete information on the number of students participating in dual credit courses.

Because the study's focus is at the district level, and district and high school educators are responsible for general education dual credit courses, the study does not examine career and technical dual credit opportunities, beyond information volunteered by a few district administrators

Appendix A. Description of study methodology

This appendix provides a detailed description of research design and data sources, sampling choices, data collection methods and instruments, and analysis methods.

Research design and data sources

This study used the six districts identified for participation as the unit of analysis; that is, the case level was the district. A primary justification for conceptualizing a district as the unit of analysis was because dual credit policies and practices often entail agreements made at the superintendent or district level with postsecondary institutions and other partners.

A profile record was created for each district consisting of all forms of study data collected, as described below. The study team used these records to create a narrative profile for each district (see appendix C). Data to address the research questions were derived from four sources:

- **Research literature** on guidance and recommended practices in dual credit program design, implementation, and evaluation.
- **Relevant extant documents** gathered from the three regional education cooperatives, the six school districts, high schools, partner postsecondary institutions, state agencies, and other entities that collaborate with dual credit programs in the districts. These documents included articulation agreements between districts and postsecondary institutions, memoranda of understanding, course schedules and syllabi, curriculum frameworks and benchmarks, program guides, recruitment and marketing materials, budgetary and scholarship information, state policies and regulations, accreditation standards, enrollment data, and affiliations and qualifications of postsecondary institution faculty and high school teachers. Documents were located through web searches and solicited for collection during the interviews with stakeholders. Districts varied in the number and types of documents provided.
- **Descriptive demographic information** gathered from local, state, and federal datasets about dual credit programs and districts, high schools, and postsecondary institutions.
- **Phone interviews** with district administrators, postsecondary institution administrators, high school administrators, state education agency administrators, administrators at collaborating organizations directly involved in developing dual credit policies and programs, course instructors at postsecondary institutions, and course instructors at high schools. Each type of staff was conceptualized as a distinct stakeholder group that would yield different data and required different interview protocols; each stakeholder group was therefore interviewed using a customized protocol (see appendix B for key questions from interview protocols). Each interview protocol was conceptualized as a different data collection instrument aimed at capturing the distinct perspectives, knowledge, and experiences of the given stakeholder. The seven interview protocols were developed specifically for this study and were not otherwise validated prior to use in the interview data collection.

Including the seven distinct stakeholder groups enabled the study's findings to broadly capture the external context (state policies and regulations; state, county, community, district, and school settings and demographics), program design and primary program elements (partnerships, eligibility, credentialing, curricula,

funding, and academic and nonacademic supports), and current implementation (program duration, participants, courses, instructors, completion rates, and barriers and catalysts) of dual credit programs in the districts.

Sampling choices

The study used purposeful, maximum variation sampling to select six information-rich district sites for in-depth study. This sampling method seeks to identify a range of settings that reflects all or most types of settings of interest in the inquiry (Onwuegbuzie & Leech, 2007). The variation to be captured was in geographic location and district size, two factors that Kentucky College and Career Readiness Alliance members indicated might be responsible for variation in dual credit programs related to access and capacity.

Data collection methods and instruments

The study's primary data collection methods were phone interviews with representatives of seven key stakeholder groups and a review of extant documents related to the dual credit programs in the six districts, gathered from a variety of sources. This approach allowed the study team to conduct multiple interviews in districts where more than one person in a stakeholder group acted as a key informant about dual credit policies and programs.

The study team began by inviting a district representative to participate in the interview process or to recommend the person or people in the district most knowledgeable about and responsible for its dual credit program. The process of interviewing the district informant included soliciting the names and contact information for the high school and postsecondary institution administrators who were the most appropriate to interview. The study team then solicited the names and contact information for instructors of dual credit courses from the high school and postsecondary institution administrators. State education agency administrators and collaborating organization administrators were identified in a similar manner, as well as through document review.

Note-taking templates were created for each interview protocol and mapped to the interview questions, with an area for recording emerging themes. During the interviews each participant was asked to provide any relevant documents about the context, design, and implementation of the dual credit program. A document log template was created to ensure consistency in web searches and to organize the printed and electronic documents gathered systematically.

A phone interview consent form and seven interview protocols were created for the study. Each interview protocol included the same introduction summarizing the design of the study and obtaining consent, followed by a series of questions about dual credit policies, programs, and practices. Some questions were shared across stakeholder groups, but each interview protocol was customized to reflect the expected knowledge, experiences, roles, and responsibilities of that group.

Procedures to protect confidentiality included identifying interviewees, institutions, and organizations by numbers or codes; avoiding the use of direct quotes in the report; and maintaining data in a secure server accessed only by the study team.

Analysis methods

The study's main analytic strategy was to make comparisons within and across the data sources to identify conceptual similarities, themes, and patterns. Triangulation (convergence of findings) was addressed in three ways: by using a variety of data sources to address each research question, by drawing on multiple perspectives in the literature to inform the coding scheme and interpretation of findings, and by multiple members of the study team collecting, organizing, and analyzing data and creating the profile narratives, with the intent of avoiding the biases of any one person working alone. Emergent findings were triangulated across data sources (interview transcripts, extant documents, and demographic datasets) and the perspectives of the seven stakeholder groups.

Interview data and extant documents were analyzed through content analysis, a systematic approach to analyzing complex qualitative data. The study team created an initial a priori coding scheme developed from the study's research questions, interview protocols, relevant literature on dual credit programs and best practices, and input from the Technical Working Group (an external expert advisory panel for this study).

The study team applied the a priori coding scheme to all interview data and extant documents collected during the study. The appropriate codes were recorded in a specific section on either the interview summary template or the document log template. In this way, all codes for a specific interview or a document were summarized in one place for easy review and comparison. Each study team member completed the coding for the districts for which she or he had primary responsibility for data collection. Two study team members each had responsibility for two districts, a third study team member for one district, and the fourth study team member for one district and state education agencies. The a priori coding scheme fully captured the emergent findings and did not require any revisions, additions, or deletions of primary codes or subcodes.

A profile template (standard format) was created for use by the study team in developing the six district profiles. Each member of the study team developed his or her respective district profile or profiles using the dataset of interview template pages, interview audio recordings, document template pages, and collected extant documents. To maximize reliability and consistency, the principal investigator reviewed each district profile using the above data and a set of overall summary notes for each district. The goal was to assess the consistency of the data with the information presented in the district profiles and to determine whether the data supported the themes and conclusions drawn. Each study team member then reviewed each profile and developed a set of cross-district themes, which were compiled by the principal investigator and developed into a set of findings. The study team reviewed the findings and reached consensus on the key findings.

District profiles were also used for member checking purposes. In each district one interview participant was identified to confirm whether the study's overall findings were consistent with the information interviewees had conveyed about the district's dual credit programs.

Appendix B. Key questions from the interview protocols

This appendix provides key questions from the interview protocols for seven stakeholder groups: district administrators, postsecondary institution administrators, high school administrators, state education agency administrators, collaborating organization administrators, course instructors at postsecondary institutions, and course instructors at high schools.

All administrators

- For how long has your [organization] offered dual enrollment/dual credit (DE/DC) programs? What was the impetus for establishment of/involvement in DE/DC programs? Who was involved? What types of memoranda of understanding/contracts/partnership agreements do you have among the partners?
- Are there any current state/postsecondary institution/district policies that act as catalysts/supports for the DE/DC programs? As barriers? What types of policies, resources, and other factors would enable you to enhance/expand your DE/DC programs?

District, postsecondary institution, and high school administrators

- Do you have only dual credit, only dual enrollment, or both types of programs? If you have both programs, do different groups of students participate in dual enrollment vs. dual credit? If so, how?

District and postsecondary institution administrators

- What kinds of communication and collaboration take place between the district and postsecondary institution(s)? What has worked well in this partnership? What improvements are needed?
- In general, what types of courses are included in the DE/DC programs (for example, science, technology, engineering, mathematics [STEM]; humanities; technical/professional; languages; remedial/general/advanced)? How and by whom are course offerings selected? What other courses would you like to provide that you currently do not? What courses have students requested that you do not currently offer?
- Where and when do the DE/DC courses take place (for example, at high school/district sites, at postsecondary institution, at professional sites, online, daytime/evening/weekends)? What is the rationale for offering courses at this/these location/s?
- What, if any, academic and nonacademic supports does the district provide to students in the DE/DC programs? [Probe as needed: Advising/mentoring, tutoring, study skills sessions, transportation, college applications, and financial aid counseling.]
- Who teaches the courses? How are instructors selected/credentialed? What, if any, barriers have you encountered in recruiting/retaining instructors? What strategies have you used to overcome those barriers?
- As a district administrator, how do you promote the rigor and quality of the courses?
- Who pays for the costs of enrolling in the DE/DC courses? Do students receive any subsidies/discounts (for example, tuition discounts, book/supplies vouchers, scholarships)? Does your district receive any funding/grants/subsidies for the DE/DC programming?

District and high school administrators

- Which groups of students does the district specifically target for recruitment/participation in the DE/DC programs? What recruitment strategies are used? What are the characteristics of students who participate in DE/DC programs?
- What are the primary barriers for student participation in your DE/DC programs? What types of students would you like to have participating in the DE/DC programs that are not?
- In general, has your district's/school's size, geographic location in the state, rural/suburban characteristics, and/or student population (demographics) created any unique issues for designing and implementing your DE/DC programs? If so, please describe.
- What impact have dual credit opportunities had on students in your district/school? How do you track students after high school graduation on college enrollment/persistence/success?

District administrators

- [If applicable] Are DE/DC programs offered at all high schools in the district? What, if any, differences exist across high schools (for example, percentage of students participating, courses offered, program structure)?

Postsecondary institution administrators

- Are high school and postsecondary students enrolled in the same courses?
- How do students evaluate the courses and instructors? How and with whom is the course evaluation information shared (for example, instructors, school district, postsecondary institution)?
- Have your instructors encountered any challenges in teaching high school students? In teaching a mixed group of high school and college-level students in the same courses?
- At your postsecondary institution, how do you determine which students participated in a DE/DC program as high school students (that is, how students have earned academic credits at your institution)?
- What impact have DE/DC opportunities had on students who subsequently enroll at your postsecondary institution?

High school administrators

- What other courses would you like to provide that you currently do not? What courses have students requested that you do not currently offer?
- Have there been additional benefits to implementing DE/DC programs? Any unintended consequences or negative results?

State education agency administrators

- What do you view as the most important state policies now governing DE/DC programs in Kentucky? How consistently are these policies applied across the state, and how do you know? How often are state policies for DE/DC programs reviewed or revised, and what is the process?
- What has been working well with DE/DC programs and policies in Kentucky? What barriers to implementation of DE/DC programs has your organization identified? What facilitators?

- What, if any, strategies has your organization recommended to districts/schools/postsecondary institutions to overcome barriers?
- What improvements are needed in state policies and support for DE/DC programs? What actions would be necessary to bring about these improvements? What role might you play?

Collaborating organization administrators

- What was the impetus for your organization being involved in the DE/DC programs?
- How are the DE/DC programs linked to college and career readiness goals of your organization?

Course instructors at postsecondary institutions and high schools

- What DE/DC courses do you teach? How were you recruited to teach those courses? Are the courses outside your regular teaching load/responsibilities?
- Has the postsecondary institution/school district provided you professional development related to teaching high school–level students/DE/DC courses? If so, please describe.
- When and where are your courses taught? What do you see as the advantages and disadvantages of this schedule/location? What are the sizes (enrollment numbers) of your courses?
- In general, are the high school students who enroll in your DE/DC courses able to complete them successfully? If not, what skills, knowledge, and/or experiences do they lack?
- How and for what purpose do you communicate with the district(s)/high school(s)/postsecondary institution about the DE/DC course(s)/program(s)?
- What challenges have you encountered as a DE/DC course instructor, and how were these challenges addressed?

Course instructors at postsecondary institutions

- Are you aware which students are high school students in DE/DC programs and which have college-student status in your courses? Are high school and regular college students enrolled in the same courses?
- Do you or your institution provide academic/nonacademic support for these students beyond that which you provide to regular college students? If so, what supports are provided?

Appendix C. District profiles

The district profiles provide an overview of the dual credit programs in the study's six non-urban districts. Although similar in format, each profile captures the specific data provided by the key informants in that district. The level of detail in each profile varies based on the information provided by the districts.

District 1

- Region: West.
- Locale: Rural fringe.
- Number of high schools: 4.
- 2013/14 enrollment in grades preK–12: 14,000.
- 2013/14 enrollment in grades 9–12: 4,000.

Program policies and practices. District 1 has offered dual credit courses for more than 10 years. The district offers singleton courses, in which a variety of courses are available and students may take as many dual credit courses as they are eligible for and can fit into their high school schedules. The district allows nearly all college courses to count for high school credit. Dual enrollment for which students earn only college credit is rare.

District 1's dual credit programs are managed primarily by high school counselors, who work directly with administrators at the partner postsecondary institutions to develop and implement dual credit programs. This enables each school to tailor programs to student need, resulting in variation in the number and types of courses offered at each high school.

Dual credit courses are open to students in grades 11 and 12, as well as to students in grades 9 and 10 who have approval from both the high school and postsecondary institution. All high school students are encouraged to participate in dual credit courses. Counselors provide information on dual credit courses to all students and families at parent nights and college and career readiness events.

Student participation. The number of students enrolled in dual credit courses in District 1 has increased over the last 10 years. Administrators at the partner four-year postsecondary institution reported that the dual credit program enrolled 350 students in 2004/05, compared with 1,900 in 2013/14. Enrollment data provided by district administrators indicate that more than half of students in grades 11 and 12 at three high schools enrolled in dual credit courses in 2013/14; one high school reported more than 80 percent participation by students in grades 11 and 12.

Most dual credit courses require students to meet academic benchmarks to enroll. An ACT reading score of 20 or an ACT Compass score of 85 is required for such courses as computer science, public speaking, and psychology. An ACT math score of 22 is required for college algebra. Specific courses may have additional requirements. For example, for history courses one high school requires students to have a Scholastic Reading Inventory Lexile score of 1050–1300 or a PLAN reading score of 17 because students had previously struggled with the reading level of the course materials. Also, the partner four-year postsecondary institution requires high school students to take a placement exam for college algebra.

In addition to academic prerequisites, partner postsecondary institutions provide guidelines on the characteristics of students who are likely to succeed in dual credit courses: a proven record of academic achievement, mature, independent, self-motivated, able to manage time well, a minimum high school grade point average of 2.5, and an attendance rate of 90 percent.

Partner postsecondary institutions. Dual credit programs in District 1 are offered primarily by a community and technical college and a public four-year postsecondary institution. District and postsecondary institution administrators described the relationship as positive and supportive, although they acknowledged challenges working with differing academic calendars and scheduling. Because high schools in the district begin courses earlier in the fall than postsecondary institutions do, high schools must create activities to occupy students until the dual credit courses begin. Occasionally, postsecondary institutions must cancel a course because they cannot find an instructor, which creates problems in reworking students' schedules.

Course offerings. The number and types of dual credit courses offered at District 1 high schools depend largely on the availability of credentialed teachers at each high school. The number of courses offered in 2013/14 ranged from 11 to 28 across the four high schools. The most commonly offered courses are algebra, history, public speaking, psychology, and sociology. Other courses include agriculture, art, chemistry, computer science, dance, English, journalism, nutrition, sign language, and sports management. The four-year postsecondary institution offers approximately 10 online dual credit courses each semester, including art appreciation, economics, general math, history, introductory writing, public speaking, psychology, sociology, and U.S. government.

Course location and scheduling. District 1 students can enroll in dual credit courses held at their high school, at the community and technical college, or online. The most common enrollment option is at the high school, with courses scheduled during the school day. High school administrators and course instructors reported that attending courses at the high school allows access for more students, is viewed as less intimidating by students, and enables high school counselors and teachers to support students in meeting college-level course expectations.

The community and technical college offers courses at the high schools and on its own campus taught by college instructors. The courses often enroll only high school students, but some courses enroll both high school and regular postsecondary students. The four-year postsecondary institution also offers online dual credit courses.

Instructors and credentialing. Dual credit courses in District 1 are taught by both high school and college instructors. Administrators at the partner postsecondary institutions reported that their dual credit programs rely mostly on high school teachers, partly because few postsecondary institution faculty members are available to travel to the high schools. Online courses and courses offered at postsecondary institutions are taught by postsecondary institution faculty. Finding credentialed instructors to teach dual credit courses is a challenge, especially in communication, psychology, and sociology. Postsecondary institution administrators noted that many high school teachers receive a master's degree in counseling and administration rather than in an academic content area that would provide the 18 graduate hours of content credit the state requires to teach dual credit courses.

Student supports. Program administrators at the partner postsecondary institutions provide logistical support in the enrollment process, serving as the primary contact for high school counselors and acting as the liaison between high school students and postsecondary institution offices of admissions, registrar, and financial aid. The program administrator at the community and technical college provides assistance at the high schools to help students enroll and register for courses and visits high schools to administer the ACT Compass assessment to students who wish to enroll in dual credit courses but did not meet required ACT benchmarks. High school students enrolled in dual credit courses at the community and technical college have access to services available to the institution's regular students.

Some dual credit postsecondary instructors, on their own initiative, provide additional support to high school students. For example, they hold office hours at the high school to meet with students or integrate academic support in the course design to help high school students transition to college-level academic expectations.

Quality assurance. Quality assurance procedures vary by course location and postsecondary institution. Institutional course evaluation processes are used to evaluate dual credit courses taught at the postsecondary institution. The postsecondary institutions provide a professional development session for dual credit high school instructors each summer and expect instructors to use designated syllabi and materials for each course.

The dual credit administrators at the community and technical college observe dual credit high school teachers annually. The four-year postsecondary institution appoints a department liaison to support dual credit instructors at the high school and encourages, but does not require, the liaisons to observe and provide professional development to the high school teachers. Both the community and technical college and four-year postsecondary institution ask students to evaluate their instructors in the same manner that regular college students do, using standardized end-of-course surveys.

Costs of and funding for programs. Dual credit costs in District 1 vary by course location and the postsecondary institution offering the course. Consistent with state policy, students pay a \$50 administrative fee each semester for dual credit courses taken through the community and technical college at the high school and taught by a high school teacher. For dual credit courses taken at the community and technical college, students pay for the first credit hour, approximately \$150. Dual credit courses taken through the four-year postsecondary institution cost \$70 per credit hour, or \$210 for a three-credit course (discounted from the approximately \$1,000 that is typical per course).

Students are responsible for all dual credit costs. The district, its high schools, and the postsecondary institutions do not receive state funding, grants, or subsidies to support the programs. However, the four-year postsecondary institution has a scholarship fund for each partner high school that is supported by tuition paid for dual credit courses taught at the high school by high school teachers. The university allocates \$50 per student into each high school's scholarship fund to offset costs to students of tuition or books.

In addition, high school counselors encourage eligible students to apply for the Mary Jo Young Scholarship. Some high schools also loan donated college textbooks to students, solicit contributions from local community organizations, and hold fundraisers. Even so,

administrators reported that cost is a barrier for some students who do not qualify for financial assistance.

Successes and challenges. District 1 interviewees perceive dual credit programs as effective preparation for college-level expectations and coursework. Several factors contribute to the success of dual credit programs in the district. It is located near its two primary partner postsecondary institutions, both of which have dedicated dual credit program offices and administrators who work closely with districts, schools, and students to develop dual credit programs and help students navigate the system. Program staff in high schools, the district, and the postsecondary institutions reported generally positive relations that contribute to joint problem solving around complex challenges such as scheduling. In addition, the district administrator who supervises the four high schools holds monthly counselor meetings during which counselors share information on their respective dual credit programs.

Growth in dual credit programs has created challenges for the high school and postsecondary institution staff who administer the programs. High school counselors reported that coordinating the dual credit programs is nearly a full-time job. They are responsible for recruiting, advertising the program, communicating with postsecondary institutions, finding instructors, securing funds for students in financial need, and tracking course grades. Similarly, the postsecondary institutions typically have one or two staff working with more than 20 districts and schools on dual credit programming. In addition, District 1 interviewees reported challenges finding enough dual credit instructors to offer all the courses students wish to take.

District 2

- Region: West.
- Locale: Rural distant.
- Number of high schools: 1.
- 2013/14 enrollment in grades preK–12: 2,300.
- 2013/14 enrollment in grades 9–12: 700.

Program policies and practices. District 2 uses the singleton configuration, offering individual courses established in the past five to seven years through the initiative of one of the district's current partner postsecondary institutions. High school staff are primarily responsible for maintaining relationships with postsecondary institutions; district staff have minimal involvement in the dual credit program.

Information about dual credit programming is available on the high school's website, and the school hosts an annual parent night to discuss dual credit options. In addition, counselors from the partner postsecondary institutions travel to the high school to promote dual credit courses, and the high school counselor goes into classrooms in the spring to explain the benefits of dual credit, emphasizing the potential cost savings for students who plan to attend college.

Student participation. Student participation in the dual credit program varies from year to year and from course to course. The district did not provide enrollment numbers. The program is open to all students who meet state and local eligibility requirements. In addition, District 2 requires students to be in grade 11 or 12, with the exception of a chemistry course in which students may enroll beginning in grade 10.

Partner postsecondary institutions. District 2 partners with three postsecondary institutions to provide dual credit courses: a community and technical college, a public four-year postsecondary institution, and a private four-year postsecondary institution. General education courses are offered primarily through the public four-year postsecondary institution. The community and technical college and private four-year postsecondary institution also offer a small number of dual credit general education courses. Career and technical education courses, some of which are dual credit courses, are offered at an area technology center, which acts as a satellite campus of the community and technical college.

All partner postsecondary institutions are at least 25 miles from District 2. The public four-year postsecondary institution is approximately 40 miles from the high school, the private four-year postsecondary institution is approximately 35 miles from the high school, and the area technology center is approximately 25 miles from the high school. Transportation to the community and technical college is provided by district bus. Dual credit courses are also held at the high school or offered online through the public four-year postsecondary institution.

The partnerships between District 2 and the postsecondary institutions, especially with the four-year postsecondary institutions, have evolved over time as the postsecondary institutions have approached the district with new opportunities for dual credit courses.

Course offerings. District 2 offers eight dual credit courses: algebra, biology, chemistry, English IV, environmental science, geology, Spanish 101, and theater appreciation.

Course location and scheduling. Most dual credit courses meet during the school day, though the district has offered dual credit courses after school to accommodate students' schedules. Dual credit courses take place either at the high school or at the area technology center. No dual credit courses for District 2 take place at the partner postsecondary institutions.

Most dual credit courses are taught in a traditional, face-to-face format. A few dual credit courses use an online platform for the majority of course material but include a teacher in the room to oversee the students. Occasionally, dual credit courses are offered in a completely online format. All dual credit courses in District 2, regardless of location or format, include only high school students.

Instructors and credentialing. The majority of dual credit courses in District 2 are taught by high school teachers credentialed through the partner postsecondary institutions. Faculty members from the private four-year postsecondary institution travel to the high school to teach some courses for which no district high school teacher is credentialed.

The state requirement for 18 graduate credit hours in the content area presents a challenge to identifying qualified high school teachers in all subject areas desired by the district or by students. Recently, the public four-year postsecondary institution waived the costs for one high school teacher to take two graduate courses to complete credentialing.

Student supports. Both the high school and its partner postsecondary institutions offer a variety of supports to high school students participating in dual credit courses. The district provides bus transportation to the area technology center for students taking career and

technical education courses and other dual credit courses there. The district is working to establish a busing agreement with the public four-year institution so that more students have the opportunity to enroll in courses offered on its main campus. In addition, high school teachers are proactive in structuring the design and delivery of dual credit courses to enable students to meet college academic standards. Furthermore, some dual credit courses have a study hall built into the schedule once each week. The public four-year postsecondary institution provides dual credit students full access to all university supports and services, including libraries, tutoring, computers, and fitness facilities.

Quality assurance. Quality assurance consists of the postsecondary institutions providing course syllabi that high school teachers must use; teachers can modify them but must submit revisions to the postsecondary institutions for approval. The dual credit courses use the same textbooks and materials as their regular college-level counterparts.

Costs of and funding for programs. In District 2 costs for dual credit courses vary by postsecondary institution. For students taking courses through the community and technical college taught at the area technology center by high school teachers, costs are based on the statewide Kentucky Community and Technical College System model, in which tuition is free and students pay only a \$50 fee per semester.

For dual credit courses taken through the public four-year postsecondary institution, the tuition is discounted to \$210 per three-credit course, paid for by the students. This price represents a two-thirds discount from the cost for a full-time, regular postsecondary student.

To help offset the costs of dual credit courses for students, the district offers a local need-based scholarship. The district also encourages eligible students to apply for the Mary Jo Young Scholarship. In addition, the public four-year postsecondary institution allocates funds, collected through course fees, to the district to use for expenses associated with dual credit courses. The district uses this allocation primarily to purchase course materials, with portions used to assist individual students in purchasing books or covering tuition.

Successes and challenges. District 2 interviewees noted successes of the dual credit program. Communication with the public four-year postsecondary institution that provides the majority of the dual credit courses is viewed as strong and productive. District 2 administrators have regular interactions with postsecondary institution administrators and faculty members. The public four-year postsecondary institution has been supportive in creating and establishing dual credit courses. High school students save money by taking postsecondary courses at a discounted rate, and the dual credit program exposes them to postsecondary academic expectations and course structures.

One barrier in District 2 is the cost for students and their families associated with dual credit courses. A high percentage of students in District 2 qualify for free or reduced-price lunch, and they find dual credit program costs prohibitive.

Distance is also a significant barrier. The high school is at least 25 miles from the nearest postsecondary institution, including satellite campuses. This creates problems for establishing relationships with and transporting students to postsecondary institutions. Also,

having only a single, small high school, the district is challenged to find high school teachers qualified to teach dual credit courses.

District 3

- Region: East.
- Locale: Rural distant.
- Number of high schools: 4.
- 2013/14 enrollment in grades preK–12: 6,000.
- 2013/14 enrollment in grades 9–12: 1,900.

Program policies and practices. District 3 offers two dual credit configurations: singleton courses and an early college program. Most participating dual credit students enroll in individual courses offered at the high schools through two partner four-year postsecondary institutions. The early college program, in which students take a full course load at the local community and technical college, is smaller and provides a unique opportunity for students who are mature enough to handle a full college course load and college-level expectations.

Each high school is responsible for recruiting students for dual credit programming. Information about dual credit programs is provided through individual student academic advising and presentations to groups of high school students. The application process for the early college program is competitive, requiring students to demonstrate academic achievement, participation in extracurricular activities, and service to the community.

Student participation. District 3 interviewees reported that most students enroll in dual credit courses offered at the high schools and typically enroll in more than one dual credit course each year. Four or five students from each of the district's four high schools participate in the early college program held at the community and technical college; transportation to the college is provided by a district bus.

Dual credit programming is open to any high school student who meets the requirements of the particular postsecondary institution and course, including a minimum ACT score and grade point average, which at some of the partner postsecondary institutions exceeds the state requirements. Some individual dual credit courses have additional requirements, including a particular grade-level status (grade 11 or 12), successful completion of prerequisite courses in math or writing, and additional threshold assessment scores (ACT, ACT Compass, or Kentucky Online Testing).

Partner postsecondary institutions. In District 3, dual credit programming is offered through three partner postsecondary institutions: one community and technical college and two four-year postsecondary institutions. The district's dual credit partnerships have changed over time. Initially, almost all the dual credit courses taught at the high school were offered through the local community and technical college. Currently, most dual credit courses at the high schools are offered through the two four-year postsecondary institutions. This change resulted primarily from the dual credit programs' cost to the district; the four-year postsecondary institutions were able to offer dual credit courses at lower cost than the community and technical college. In addition, district interviewees reported that the community and technical college was disorganized in its approach and that communication was problematic.

Course offerings. The number of dual credit courses offered at District 3 high schools ranges from one to six. Course offerings include art appreciation, college algebra, English 101/102, health, music, oral communication, precalculus, and psychology. The early college program enrolls students in general education courses such as art, biology, English, history, and trigonometry.

Both the district and the postsecondary institutions are interested in expanding dual credit course options, but current offerings are limited by the qualifications and availability of teaching staff at the high schools. Enrollment in early college courses is limited by the maximum course load allowed for each instructor per semester.

Course location and scheduling. The course location varies by program. Individual dual credit courses are offered at all four high schools. The early college program is located at the community and technical college, where students take a full course load across the school day. One two-year postsecondary institution offers online courses, which students take in the high school computer lab, monitored by a proctor. The district is exploring strategies for expanding its online dual credit course options.

The course sections in the early college program are reserved for early college students only. However, students who complete the early college curriculum can apply for permission to enroll in additional community and technical college on-campus courses that include regular postsecondary students.

Instructors and credentialing. Dual credit instructors in District 3 include high school teachers and full-time faculty members at the partner postsecondary institutions. High school teachers' dual credit courses are part of their normal course load, and they do not receive additional compensation. Some postsecondary institution faculty members travel to the high schools to teach courses. Online dual credit courses provided by one two-year postsecondary institution are taught by its faculty, supported by proctors at the high school who monitor students in computer labs and oversee exams.

Some District 3 high school teachers have completed additional graduate courses to earn credentials to teach dual credit courses. One four-year postsecondary institution has offered scholarships to interested teachers, and the district encourages teachers to become certified to teach dual credit courses.

Student supports. District 3 provides transportation to the community and technical college for early college students, who have access to the same services at the college as regular postsecondary students, including advising. The community and technical college administrator specifically hires faculty members who are willing to work with high school students and their unique needs. High school and four-year postsecondary institution instructors can also facilitate support for struggling students by contacting the dual credit coordinators at the four-year postsecondary institutions.

Quality assurance. The three partner postsecondary institutions use a combination of strategies to monitor course quality. Full-time postsecondary institution faculty act as advisors to the dual credit teachers at the high schools and provide feedback on syllabi and lesson plans. Other strategies include standardized course evaluation instruments, approved syllabi, reviewed assignments, standardized grading rubrics, and classroom

observations. One four-year postsecondary institution requires the academic department to support the courses and the high school teachers. The department head and a designated faculty member are available to the high school teachers for assistance and guidance in implementing the courses. At that institution the academic departments have the primary authority over dual credit course quality.

Costs of and funding for programs. In the early college program, students are charged only a \$50 administrative fee per semester; tuition is waived. The program is limited to 25 students. For online community and technical college courses at the high schools, students pay 50 percent of regular tuition. The district also encourages eligible students to apply for the state-sponsored Mary Jo Young Scholarship.

One four-year postsecondary institution charges students a \$25 enrollment fee per semester for dual credit courses; these fees are paid with high school funds. The other four-year postsecondary institution charges the district a per course, per semester fee for an unlimited number of students to enroll in the courses.

Successes and challenges. Interviewees in District 3 reported that ongoing, consistent communication between the district and its partner postsecondary institutions contributes to the successful implementation of dual credit programs. In addition, successful outcomes were noted at both the district and postsecondary levels. The district has seen increases on state college and career readiness indicators. One partner four-year postsecondary institution has seen an increase in freshman enrollments from districts with which it has a strong dual credit partnership.

Dual credit program challenges include limitations on the number and variety of dual credit opportunities because few high school teachers are certified. Both high school and postsecondary instructors describe dual credit courses as requiring more time and effort than a regular high school or college-level course. Dual credit courses may be overenrolled, and occasionally instructors are required to teach more sections or courses in a semester than initially agreed on.

Although relationships between districts and partner postsecondary institutions were described as positive overall, challenges were reported around communication, including lack of clarity about the appropriate people to contact in the district and at the postsecondary institutions. This lack of clarity is due to the fact that multiple staff members in both locations have responsibilities around dual credit programs. In addition, differences between district and postsecondary academic calendars create challenges, and high school staff vary in their comfort levels with certain types of instructional technology.

District 4

- Region: East.
- Locale: Rural remote.
- Number of high schools: 1.
- 2013/14 enrollment in grades preK–12: 700.
- 2013/14 enrollment in grades 9–12: 300.

Program policies and practices. For more than 10 years District 4 has offered dual credit courses using a singleton configuration. In the past three years the district has been more

strategic in identifying partner postsecondary institutions and in expanding course offerings. District administrators reported that the district would prefer to offer a dual credit program through a single postsecondary institution that would allow students to earn up to 45 general education college credits while in high school.

Student participation. All dual credit courses in District 4 are open to any high school student who meets the state’s minimum requirements. The only formal restriction is a cap on the number of students allowed to enroll in a given course at the high school.

District administrators estimated that approximately a third of high school students in grades 9–12 enroll in dual credit courses each year. Currently, mostly students in grades 11 and 12 participate in the dual credit courses. However, District 4 encourages students in grade 10 to consider dual credit courses and, beginning in grade 7, provides information to parents and students about dual credit as a college readiness strategy.

Partner postsecondary institutions. District 4 partners with one community and technical college and three four-year postsecondary institutions. The specifics of each partnership agreement, usually in the form of a memorandum of understanding, vary by the postsecondary institution. The district is in negotiation with one partner four-year postsecondary institution to create a comprehensive dual credit program that would include both onsite courses at the high school taught by certified high school teachers and courses at a satellite campus where postsecondary institution faculty would travel to the district a few times a week to teach courses.

Course offerings. District 4 offers dual credit courses in biology, English, history, and math. The district would like to expand these offerings to include courses in psychology and sociology, especially for students interested in careers in social work, and introductory courses in anatomy, physiology, and other science areas for students interested in careers in nursing and public health.

Course location and scheduling. All dual credit courses are held at District 4’s only high school as part of the regular school-day schedule. The closest postsecondary institution, a satellite campus of the regional community and technical college, is more than 30 miles away. In addition, a few students enroll in online courses offered by the four-year postsecondary institutions; those course offerings vary from year to year.

Instructors and credentialing. District staff, high school staff, and community members who are certified instructors teach all the dual credit courses at the high school. These instructors are credentialed through the postsecondary institutions. District staff and high school teachers serving as instructors in the dual credit program receive \$500 a year from the district. Community members who serve as adjunct instructors are paid through the respective postsecondary institutions.

Some district staff and high school teachers have, on their own initiative, pursued the requisite graduate coursework to earn dual credit certification from community and technical colleges and four-year postsecondary institutions. However, there are still a variety of subject areas in which the district would like to offer dual credit courses but does not yet have credentialed instructors.

Student supports. District 4, where 90 percent of students are eligible for free or reduced-price lunch, is proactive in preparing and encouraging all students to take dual credit courses. Beginning in grade 9, the district pays all fees the first time a student takes the ACT. This is done to encourage students to take the test as early as possible so they are eligible to enroll in dual credit courses in grade 10. For students who do not meet the dual credit ACT requirements, the school provides a variety of instructional services targeting identified areas of weakness (based on ACT subtest results) through in-school and after-school programs.

One four-year postsecondary institution offers dual credit students a campus visit in the fall, where students obtain student identification and receive an orientation to the campus. The district provides buses for the visit.

Quality assurance. All dual credit courses taught at the high school use the postsecondary institutions' syllabi and course materials and textbooks. Partner postsecondary institutions expect dual credit instructors to model college-level expectations for attendance, classroom participation, student behavior, and academic standards. Monitoring of dual credit course quality varies by the postsecondary institution. The program administrator at one of the four-year postsecondary institutions annually observes each dual credit course using a standardized observation tool. Each dual credit instructor must submit a course syllabus to this administrator, who then sends it to the appropriate department chair for approval. For this postsecondary institution (and presumably others, as per state policy), dual credit students complete the same course evaluation form used for regular university courses.

Costs of and funding for programs. Program costs vary by the particular dual credit course and postsecondary institution, but the district subsidizes most tuition and textbook costs for dual credit courses taught at the high school. To reduce costs to students and families, the district includes funds to be set aside for scholarships and tuition in all state, federal, and foundation grant proposals it applies for that allow such funds. Typically, students pay only a \$25–\$50 per semester course fee for dual credit courses taught at the high school by high school teachers or adjunct instructors from the community. Textbooks for most dual credit courses are purchased with district funds and reused each year.

Costs for online courses vary; students and families are generally responsible for all costs for online courses. Some partner postsecondary institutions reduce tuition for the first three credit hours per semester for online courses.

The district also encourages eligible students to apply for the Mary Jo Young Scholarship. At one four-year postsecondary institution, students who maintain a 3.0 grade point average in their dual credit courses and obtain five or more dual credits by their high school graduation are eligible for a \$3,000 scholarship if they enroll in that institution after graduation.

Successes and challenges. District 4 interviewees believe that the dual credit program increases the rigor of the high school curriculum and raises expectations for students across academic disciplines. The idea is that students who enroll in postsecondary education will be college ready and will not need to take remedial coursework.

District 4 faces barriers of geographic isolation, poverty, and a community culture of not pursuing postsecondary education. Although a technology infrastructure is in place in the district, families may not be able to afford an Internet connection at home or a computer that would allow students to take online dual credit courses. Each year, the district's school board sets aside funds for assisting such high school students who wish to enroll in dual credit courses or career training.

District 5

- Region: Central.
- Locale: Suburb large.
- Number of high schools: 3.
- 2013/14 enrollment in grades preK–12: 13,000.
- 2013/14 enrollment in grades 9–12: 3,800.

Program policies and practices. District 5 offers a variety of dual credit programs:

- Four-year math and science academy on a community and technical college satellite campus.
- Two-year, 24-credit early college program on a community and technical college satellite campus.
- Two-year, 24-credit early college program at a high school.
- Singleton courses.

Each of the three high schools hosts an annual information event in the spring about dual credit programs that will be available in the following school year. The high school counselors in District 5 act as the main contacts between the schools and the partner postsecondary institutions. Those counselors help maintain course enrollment documents, coordinate student applications, and provide documentation of prerequisites and assessment scores.

Student participation. Dual credit programs are open to any student who meets the requirements for the particular program. Across the dual credit programs, students must meet state eligibility requirements. Some postsecondary institutions also require grade-level status (grade 11 or 12), a minimum high school grade point average, prerequisite courses in math or writing, and additional threshold assessment scores (ACT, ACT Compass, or Kentucky Online Testing). These additional requirements apply to some individual courses and to the four-year math and science academy at the community and technical college. Furthermore, the four-year math and science academy requires a student application and letter of recommendation from the high school counselor.

Participation in the dual credit programs varies from year to year and across the three high schools. The dual credit programs have various enrollment limits. The four-year math and science program has a maximum of 25 students per annual cohort. The community and technical college two-year program does not limit the number of students; approximately 40 students participate annually across the district. Participation in the early college program offered at a high school is limited to a certain number of students per course. Individual courses also have various limits on student participation. District administrators noted that many students in their dual credit programs are first-generation college students.

Partner postsecondary institutions. The district partners with four four-year postsecondary institutions and two community and technical colleges. The district negotiates each

partnership, usually annually. The specifics of each partnership agreement, usually in the form of a memorandum of understanding, vary by the dual credit program and postsecondary institution.

Currently, dual credit programs with the four-year postsecondary institutions and one of the community and technical colleges consist of individual courses that high school teachers are credentialed to teach. The dual credit partnership with the community and technical college's satellite campus, located only a few miles from District 5, includes the four-year math and science academy and the two two-year, 24-credit early college programs.

Course offerings. Specific dual credit course offerings vary by program. In the four-year math and science academy, students in grades 9 and 10 complete accelerated courses and an academic success course that provides information about college admissions processes and study skills. The dual credit course sequence includes a predetermined set of humanities, math, science, and social science courses designed to simultaneously meet Kentucky high school diploma requirements and associate degree requirements (65 or 68 credit hours). In most courses taken during grades 11 and 12, students are enrolled with postsecondary students.

In the high school-based early college program, courses are open primarily to students in grades 11 and 12. Courses include academic areas of humanities, math, social science and other general education courses. Students may earn up to 12 dual credits per year, by enrolling in two 3-credit courses per semester, for up to 24 total credits across the two years of the program.

In the community and technical college-based two-year 24-credit program, courses are limited to English, math, and predetermined elective courses in communication, humanities, science, and social sciences.

Finally, the singleton courses include traditional subject areas such as art history, education, English, history, and math. The specific courses offered differ by school based on availability of credentialed instructors.

Course location and scheduling. In the four-year math and science academy, grade 9 and 10 courses are taught by community and technical college faculty at a high school. These include in-person and online courses. The academic success course meets twice weekly for 75 minutes per session. Grade 11 and 12 students attend all courses at the community and technical college. The four-year math and science academy follows the community and technical college academic calendar, whose winter and spring breaks and grading schedules differ from the district calendar's.

Courses in the high school-based early college program are taught by faculty from the community and technical college during the regular high school day. Courses in the community and technical college-based early college program are taught by postsecondary institution faculty as part of the community and technical college's regular course offerings. These courses enroll both high school students and postsecondary students. High school students in this program have three periods of high school courses at their high school in the morning and then travel to the community and technical college to attend afternoon courses.

Singleton courses are taught at high schools during regular school hours.

Instructors and credentialing. All courses in the four-year math and science academy and the two early college programs are taught by postsecondary instructors. Dual credit courses offered online or at other community and technical colleges and four-year postsecondary institutions are also taught by postsecondary instructors. Dual credit courses at high schools are taught by credentialed high school teachers. Some high school teachers also serve as adjunct faculty for their respective postsecondary institutions.

Student supports. Students in District 5's early college programs receive various supports. Students in the four-year math and science academy take an academic success course that spans grades 9 and 10 and provides information about college applications, financial aid, college visits, and credit-transfer processes in addition to study skills, note taking, and other topics related to student success. For all early college programs, the district and the community and technical college provide bus transport from the three high schools to the community and technical college satellite campus (a 20-minute commute from the most distant high school). For the four-year math and science academy at the community and technical college, lunch is delivered daily for grade 11 and 12 students who qualify for a free or reduced-price lunch or for any students who order and pay for it.

Students who participate in the two-year, 24-credit early college programs through the community and technical college have access to the college library, career planning, tutoring services, and other student services facilities and offices. In the four-year math and science academy, students have access to all regular community and technical college student facilities and student services offices when they reach grade 11.

For students enrolled in singleton courses at the high school, no unique academic or social support services are provided by the counselors or other district staff specifically for students in dual credit programs.

Quality assurance. Monitoring of dual credit course quality varies by postsecondary institution. For courses taught at postsecondary institutions, regular end-of-course evaluation processes are used to review the dual credit courses. High school teachers who teach dual credit courses at the high school are required to use preapproved course syllabi and assessments that are consistent with standards set by the partner postsecondary institutions' academic departments. A few academic departments from the postsecondary institutions require observations of high school courses every two to three years, but course instructors reported that observations rarely occur.

Costs of and funding for programs. Costs vary by the particular dual credit program; District 5 subsidizes some tuition and student fees. Because agreements were negotiated by various administrators over many years, the district pays differing rates of tuition for students depending on the dual credit program, even within a single postsecondary institution.

Students pay all costs (tuition, textbooks, and course materials) associated with the two early college programs. The community and technical college discounts its tuition rate approximately 50 percent for the first three credit hours per semester. The community and technical college satellite campus administrator has a small amount of discretionary

funding that can be used to assist with tuition, student fees, and textbooks for students with financial need.

District 5 pays all tuition costs for the four-year math and science academy. The first six credits of tuition are discounted 50 percent; all remaining credits are at full tuition rates. The district also encourages eligible students to apply for the Mary Jo Young Scholarship.

Successes and challenges. The focus on college and career readiness is gaining traction in District 5, but many students and parents are described by interviewees as not yet seeing the value of meeting college and career benchmarks or completing courses that lead to professional certification. Employment in the district is largely in manufacturing, located on the fringes of an urban center. Because these jobs do not necessarily require a post-secondary degree or certification, families may not encourage students to pursue higher education opportunities while in high school or after graduation—even though the jobs are rapidly vanishing.

Although District 5 is located approximately 20 miles from an urban center with a variety of community and technical colleges and four-year postsecondary institutions (both public and private), very few students take dual credit courses at those institutions. Parents and students are described as being intimidated by travel to the urban center, and some families in District 5 do not have the resources to provide transportation. District administrators also reported that lack of external grant funding for nonminority academic underachievers is a barrier to expanding access to lower achieving students.

District 6

- Region: Central.
- Locale: Rural distant.
- Number of high schools: 1.
- 2013/14 enrollment in grades preK–12: 2,100.
- 2013/14 enrollment in grades 9–12: 600.

Program policies and practices. District 6 offers two dual credit programs: the singleton configuration, in which students take courses based on their interests, and an early college dual credit program with a community and technical college, in which students take a full course load at the community and technical college. The high school promotes dual credit programs at registration nights and informally through teacher and student word of mouth. The postsecondary institutions also promote dual credit through information disseminated to district staff members.

Student participation. District administrators would like every eligible student to enroll in at least one dual credit course during high school. All dual credit programs are open to any student who meets the requirements for the particular program, including a minimum ACT score and minimum grade point average, which vary by postsecondary institution. Some dual credit courses have additional requirements, including a particular grade-level status (grade 11 or 12), successful completion of prerequisite courses in math and writing, and additional threshold assessment scores (ACT, ACT Compass, or Kentucky Online Testing).

District administrators estimate that 50 percent of grade 12 students have earned college credit by the time they graduate from high school. Dual credit course instructors at the

partner postsecondary institutions noted that the pass rate for high school students in dual credit courses was 70–90 percent.

Partner postsecondary institutions. Dual credit programming is offered through one community and technical college and two four-year postsecondary institutions. The community and technical college, in addition to the early college dual credit program, offers a few dual credit courses taught at the high school. At one of the four-year postsecondary institutions, one faculty member is the primary contact with the district and is responsible for a single math course. District interviewees reported a lack of organization on the part of this particular institution. The other four-year postsecondary institution provides a variety of dual credit course options. Department heads there act as the academic contacts for high school teachers; this partner also has an institutionwide program coordinator for dual credit. District administrators have taken the lead in establishing dual credit programs but reported that they are working to get the high school to take more ownership.

Course offerings. Dual credit courses offered include American history, calculus, college algebra, English 101/102, trigonometry, and other general education courses. Both the district and partner postsecondary institutions are interested in expanding course options, but expansion is limited by the qualifications and availability of high school teaching staff. District and postsecondary institution administrators reported no central strategy for determining which dual credit courses to offer. Current course options became available through a variety of means: individual teacher interest, district administrator interest, and partner postsecondary institutions' standard dual credit course offerings.

Course location and scheduling. There are multiple locations and formats for dual credit courses in District 6. The early college program takes place at the community and technical college as a full-time load of courses. Singleton courses may be at the high school, at the postsecondary institution, or online. Most courses occur during the day, but some take place before or after school to accommodate students' schedules. Some courses use course management software in a hybrid approach (combination of online and face-to-face instruction), exposing students to a format they are likely to experience in college.

Instructors and credentialing. Dual credit instructors in District 6 include high school teachers and administrators credentialed by the postsecondary institutions, as well as full-time and adjunct faculty members at the postsecondary institutions.

Online dual credit courses are taught by postsecondary institution faculty, with support from proctors at the high schools who monitor students in computer labs and oversee exams. In one dual credit math course, for example, a postsecondary institution faculty member is designated as the primary instructor; therefore, high school instructors designated as proctors are not required to be credentialed as adjuncts. The online instruction for this course is conducted through videos prepared by the postsecondary institution instructor; the proctors provide in-person academic support, administer tests, and grade homework.

A district staff member assists in the high school teacher credentialing process for courses taught at the high school. A few high school teachers have completed graduate courses to become dual credit credentialed, taking advantage of scholarships offered by one of the partner postsecondary institutions to encourage more high school teachers to become credentialed. Professional development opportunities are available to all credentialed high

school teachers and adjunct faculty members through two of the partner postsecondary institutions.

Student supports. Supports geared specifically for dual credit students in District 6 are limited. Student services provided through the postsecondary institutions are available to high school students enrolled in on-campus dual credit courses. Early college students, who take courses at the community and technical college, have access to the same services as regular postsecondary students, including advising. However, high school students who take dual credit courses at the high school are not eligible for those on-campus services.

Some high school teachers who teach dual credit courses at the high school provide tutoring, create supplemental course content materials, and promote skill development as part of their dual credit courses. These additional supports are intended to develop students' foundational content knowledge and skills and to help high school students understand and maintain the individual effort needed to succeed in college-level courses.

Quality assurance. The three partner postsecondary institutions use a variety of methods to maintain dual credit course quality, including standardized student post-course surveys, department approval of course syllabi, postsecondary institution administrator review of course assignments and student work, standardized grading rubrics, and course observation. A few dual credit courses use course management software, which allows the postsecondary academic departments to monitor instructors' grading of homework problems and tests to ensure consistency across course sections.

Costs of and funding for programs. In the early college program, in which students take a full-time community and technical college course load, the district pays 50 percent of tuition costs, and students pay the remainder. For the dual credit courses held at the high school, there are different cost structures for each of the three partner postsecondary institutions. For community and technical college courses the first six credit hours are tuition free, and students pay only the \$50 administrative fee per semester. Students pay full tuition for additional community and technical college course credit hours.

For the single math course offered by a four-year postsecondary institution, the district pays a \$60 fee for each student enrolled in the course. For courses offered by the other four-year postsecondary institution, the district pays a per course, per semester fee for an unlimited number of students to enroll; the students do not pay any tuition.

Some postsecondary institutions describe being willing to negotiate costs based on individual student financial need. Also, the district encourages eligible students to apply for the Mary Jo Young Scholarship.

Successes and challenges. A success of the dual credit program in District 6 is the ability to offer a state-mandated math course to grade 12 students by providing college algebra as a dual credit option. Interviewees also reported a higher success rate in college for students who complete dual credit courses.

Dual credit program challenges in District 6 include limited availability of credentialed teaching staff and classroom space. Some courses are offered before or after school, and some have class sizes of up to 50 students to accommodate those limitations.

Notes

1. According to National Center for Education Statistics locale designations, 55 percent of Kentucky's school districts are rural, 29 percent are town, 11 percent are suburban, and 4 percent are city.
2. While no recent data are available on the prevalence of general education versus career and technical education courses statewide, a study by the Kentucky Council on Postsecondary Education (2006) reported that 68 percent of dual enrollment courses taken by high school students in 2003/04 were general education courses.

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