

Accelerated Course Sequencing

Description:

Accelerated course sequencing (ACS) is designed to help students access all courses required for graduation and college consideration, regardless of the student's incoming proficiency. In contrast to "double blocking," where students take the same course for twice the amount of time as other courses, ACS allows students to earn more credits over a shorter span of time during the school year.

ACS can also support students who have failed or missed credits for courses in the past. Rather than repeating that course in isolation, students can take that course while also pursuing grade level content. For example, a student who has not passed Algebra I would still have the opportunity to pursue Geometry while re-taking an Algebra I as a concurrent course.

The resource implications of ACS differ based on whether or not courses are structured for students concurrently or as one integrated experience:

Concurrent courses are two required courses taken during the same semester or year. This can be within the same subject area, such as Algebra and Geometry, as long as neither course is a pre-requisite for the other. This structure is best provided through an extended school day; otherwise students may miss out on electives without additional time.¹ Because some students enrolled in these courses may be repeating them for a second time, scheduling them during the school day makes it more likely that students end up being tracked into more homogenous courses over the course of the entire day. Extending the school day helps mitigate this risk, although it does require administrators to consider implications for teacher pay, operational costs associated with keeping the building open, and student transportation options.

Integrated courses have curricula that covers two courses in a single period, and work well in a block model that extends at least 75 minutes. This structure requires the flexibility for students to earn credits based on demonstration of mastery rather than traditional seat time requirements. If one teacher is responsible for planning for and delivering instruction, this teaching assignment is significantly more challenging than running a more traditional course and will likely require targeted training and support. If an integrated course is delivered via two teachers in a co-taught model, there are resource implications for class size and teachers' planning time (see ERS' *Building Block Profile* on co-teaching for more information). In a context where ACS needs to accommodate pre-existing start and end times in the student day, the integrated approach helps ensure students are exposed to additional content and support without taking homogenous, tracked classes.

1. Some schools find creative ways to leverage electives through pairing a core course with a complementary elective (e.g. ELA and Theater), and structuring the elective's content to reinforce the skills and knowledge relevant to the core course.

Rationale:

Accelerated course sequencing can ensure students have exposure to the courses needed to be considered college- and career-ready, regardless of their starting points. This can work especially well in High School Math. Research has shown that students taking Algebra I in 9th grade have limited opportunity for Algebra I, Geometry, Algebra II, Pre-calculus, and Calculus in a four-year sequence if all courses are taken one-at-a-time²; this challenge is even greater for students needing pre-algebra skills in 9th grade. Accelerated course sequencing enables students catch up to more proficient peers who would otherwise always be one course ahead, thereby dismantling “tracks” that inhibit student learning. High schools that have implemented this approach successfully (including Life Academy in Oakland CA, profiled below) give students the opportunity to participate in all required courses for college admission over a four-year timeline, thus increasing the odds that they graduate on time and enroll in college.

KEY COMPONENTS

At its core, accelerated course sequencing requires:

1. Identification of accelerated course sequences that match to student need
2. Course offerings are scheduled strategically in order to ensure students can access all required core and enrichment content, and have opportunities to learn in diverse classrooms with peers who are at varying levels of proficiency
3. Standards-aligned curriculum to ensure students are exposed to rigorous instructional materials
4. Deliberate assignment of effective teachers as well as ongoing support for staff assigned to accelerated courses

2. Note: research as shown taking high school courses in middle school is an effective way to ensure students access all these content areas. See the research section below for additional reading.

District Level Enabling Conditions

Effective implementation of accelerated course sequencing is best supported by the following district conditions:

- Guidance on the most common course sequences to catch students up within district context and scheduling models or prototypes to support these sequences
- Standards-aligned curriculum for all courses, including acceleration courses
- Collective bargaining agreements that ensure teacher time is flexible enough to support before, after and summer school opportunities for students
- Flexible licensing agreements of technology software if pursuing the option to leverage technology as a means to pre-teach or support content knowledge development beyond traditional classrooms
- Flexible transportation options for schools looking to extend the school day

Clarify purpose: Before deciding how to organize resources in support of accelerated course sequencing, determine what purpose it should serve in your school's unique context.

- *Given your students' needs, what does your approach to accelerated course sequencing aim to achieve? Does it need to be targeted to particular student groups or grades in order to meet your school's most urgent needs?*
- *What are one or two high-level goals that you might use to measure success annually? What quantitative targets might you set with respect to those goals in each of the first few years of implementation?*
- *Who are the key stakeholder groups (e.g. particular groups of students, teachers, families) that you'll need to communicate with as you develop your approach your school's approach to accelerated course sequencing?*

MAKING IT WORK: RESOURCE IMPLICATIONS

Accelerated course sequencing will have implications for people, time, and money in your school. These implications are noted below, alongside specific questions to answer during the planning process.

1. Identification of accelerated course sequences that match to student need.

To determine which courses need to be accelerated, schools will need to analyze incoming student proficiency, typical course-taking patterns, and where students tend to struggle in the current sequence. On an annual basis, schools should collect student input on the course-taking sequences that students have tried in order to adjust and improve future course sequences. To ensure students maximize the course sequences available to them, schools will also need to develop a clear process for guiding students' course selection. Students should be identified for ACS based on their unique needs, and advised on what series of courses will best help them meet graduation requirements and achieve college and career readiness.

Key Questions:

- *Who will analyze student need data (including data from feeder schools) to identify appropriate course sequences, and over what span of time? Note it should be early enough to allow for the collection of input from stakeholders, including students and teachers.*
- *Who will collect student and teacher input on potential changes to course sequences, and over what span of time?*
- *Based on student need data, stakeholder input, and the courses required for graduation in your district, what are appropriate course sequences that will enable students to master all content by graduation? When will students need the opportunity to double up courses, and in what subjects and years?*
- *Which accelerated courses will be scheduled concurrently versus combined as an integrated course? See the description of accelerated course sequencing above for key considerations when making this decision.*
- *Who will guide students in course selection and over what span of time in the school year?*

2. Course offerings are scheduled strategically in order to ensure students can access all required core and enrichment content, and have opportunities to learn in diverse classrooms with peers who are at varying levels of proficiency.

If schools implement ACS *outside the regular or contracted school day*, then they are better suited to maintain enrichment opportunities for students and/or ensure that students are not grouped or tracked in proficiency-based cohorts, which can result in lower expectations and performance.

If the integrated or concurrent classes are provided *during the school day*, student and teacher assignment decisions become more complex because the schedule is more constrained. This work takes deep coordination with the scheduler to ensure sections of the course will need to be offered are available when students need them most, and that effective teachers will be available to instruct those courses.

Key Questions:

When will students have the opportunity to accelerate their course sequence? Will this take place during school or outside of the typical day?

a. If outside of the school day:

- *How many courses will be offered before or after school? How many sections will be needed of each?*
- *How many minutes will this approach extend the school day by, and for which students and teachers?*
- *What compensation will be required for teaching beyond the typical school day? Given the number of teachers needed to cover the extend time, how much needs to be invested in stipends?*
- *What are the implications of this extended day for operational costs (e.g. security required to keep the building open later) and student transportation?*

b. If during the school day:

- *Who will assign students to sections and ensure that students are not left on “tracks” that can widen achievement gaps?*
- Concurrent Classes:
 - *What courses will the additional course replace?*

- *Will additional staff will be needed in content areas where courses are being provided concurrently, and if so, will staff be re-assigned internally or hired externally? If adding staff for this purpose will require reducing positions elsewhere, which positions will be eliminated?*
- *How will assigning students to additional core classes impact their exposure to electives or enrichment, and does this affect the number of electives teachers you need? How will you ensure students maintain exposure to enrichment despite the addition of a core course to their schedules?*

3. Standards-aligned curriculum to ensure students are exposed to rigorous instructional materials.

Regardless of whether ACS takes place through a concurrent or integrated model, students will need access to high-quality, standards-aligned curriculum. In a concurrent model, a blended learning approach could also enable students to participate in an additional virtual course outside of the regular school day. For schools that choose to pursue an integrated approach, such as combining Algebra and Geometry into one course, special care will need to be taken in selecting and adapting the two relevant curricula to ensure that they are highly complementary. Project-based learning may support this approach because it offers an opportunity to integrate cross-disciplinary skills into coursework (see ERS' *Building Block Profile* on Project-based Learning for more information). If students require remediation in basic skills in order to complete the relevant coursework, the curriculum and supporting instructional materials should also help teachers determine appropriate options for scaffolding relevant content.

Key Questions:

- *Will your existing curriculum work well in an accelerated course context? If not, will you need purchase new curriculum or adapt your existing materials?*
- *If new curriculum will be required, how much will it likely cost? If curriculum will need to be adapted, who will be responsible for doing so and over what span of time? Note this type of work is usually best suited to teacher leaders or other teachers with curricular expertise.*
- *What courses, if any, would be taught through a blended learning model?*
- *What technology investments would be needed to support your blended learning approach?*

4. Deliberate assignment of effective teachers as well as ongoing support for staff assigned to accelerated courses.

Accelerated models, particularly those that rely on an integrated model, will likely require teachers to think differently about when and how instruction occurs for distinct courses. Teachers should be selected carefully for these more challenging assignments; ideally teachers will arrive with strong background knowledge and track record of success in each course that will need to be integrated. Start-up professional development and time for curriculum adaptation can help set teachers up for success in accelerated courses, and ongoing coaching will help ensure they have the support they need to teach effectively in this new model.

Key Questions:

- *What teachers will instruct each content area? Consider the need to balance expertise within shared-content teams. Regardless of whether you pursue a concurrent or integrated approach, all teachers should have access to a team that focuses on the same content in order to refine lessons effectively and design student interventions. See ERS' Building Block Profile on Shared-Content Teams for more information.*
- *If you're pursuing a concurrent approach that requires teachers to work outside the regular school day, how will you incentivize staff to participate? What will the selection process involve?*
- *If you're pursuing an integrated approach:*
 - *Which existing teachers have the potential expertise to manage a classroom using two curricula and sets of standards?*
 - *Who will provide ongoing coaching and support to teachers overseeing integrated courses?*
 - *Will these teachers form a distinct teaching team or will you need to integrate them into existing teaching teams?*
 - *What are scheduling implications of their participation in these teams?*
 - *What additional start-up or technical assistance do teachers instructing accelerated courses need? How can this support facilitate their existing learning goals?*

SUMMARY OF KEY QUESTIONS TO GUIDE THE PLANNING PROCESS

ASSESS THE NEED

- Who will analyze student need data (including data from feeder schools) to identify appropriate course sequences, and over what span of time?
- Given your students' needs, what does your approach to accelerated course sequencing aim to achieve? Does it need to be targeted to particular student groups or grades in order to meet your school's most urgent needs?

DESIGN THE STRATEGY

- Who are the key stakeholder groups (e.g. particular groups of students, teachers, families) that you'll need to communicate with as you develop your approach your school's approach to accelerated course sequencing?
- Who will collect student and teacher input on potential changes to course sequences, and over what span of time?
- Based on student need data, stakeholder input, and the courses required for graduation in your district, what are appropriate course sequences that will enable students to master all content by graduation? When will students need the opportunity to double up courses, and in what subjects and years?
- Which accelerated courses will be scheduled concurrently versus combined as an integrated course?
- What courses, if any, would be taught through a blended learning model?

MASTER SCHEDULE

- If using a concurrent approach to ACS: What courses will the additional course replace?
- If using an integrated approach to ACS: What are scheduling implications of teachers' re-assignment to new shared-content teaching teams?

TEACHER AND JOB ASSIGNMENT

- Who will guide students in course selection and over what span of time in the school year?
- How many courses will be offered before or after school? How many sections will be needed of each?

- How many minutes will this approach extend the school day by, and for which students and teachers?
- What teachers will instruct each content area?
- If you're pursuing a concurrent approach that requires teachers to work outside the regular school day, how will you incentivize staff to participate? What will the selection process involve?
- If using an integrated approach to ACS: Which existing teachers have the potential expertise to manage a classroom using two curricula and sets of standards?
- If using an integrated approach to ACS: Will these teachers form a distinct teaching team or will you need to integrate them into existing teaching teams?

STAFFING AND BUDGET PLAN

- If extending the day for ACS: What compensation will be required for teaching beyond the typical school day? Given the number of teachers needed to cover the extend time, how much needs to be invested in stipends?
- If extending the day for ACS: What are the implications for operational costs (e.g. security required to keep the building open later) and student transportation?
- If incorporating ACS into the current day: Who will assign students to sections and ensure that students are not left on "tracks" that can widen achievement gaps?
- If using a concurrent approach to ACS: Will additional staff will be needed in content areas where courses are being provided concurrently, and if so, will staff be re-assigned internally or hired externally? If adding staff for this purpose will require reducing positions elsewhere, which positions will be eliminated?
- If using a concurrent approach to ACS: How will assigning students to additional core classes impact their exposure to electives or enrichment, and does this affect the number of electives teachers you need? How will you ensure students maintain exposure to enrichment despite the addition of a core course to their schedules?
- Will your existing curriculum work well in an accelerated course context? If not, will you need purchase new curriculum or adapt your existing materials?
- If new curriculum will be required, how much will it likely cost? If curriculum will need to be adapted, who will be responsible for doing so and over what span of time? Note this type of work is usually best suited to teacher leaders or other teachers with curricular expertise.

- What technology investments would be needed to support your blended learning approach?
- What additional start-up or technical assistance do teachers instructing accelerated courses need? How can this support facilitate their existing learning goals?

ANNUAL PROFESSIONAL LEARNING PLAN

- Who will provide ongoing coaching and support to teachers overseeing integrated courses?

IMPLEMENTATION PLAN

- What are one or two high-level goals that you might use to measure success annually? What quantitative targets might you set with respect to those goals in each of the first few years of implementation?

POTENTIAL CHALLENGES	POTENTIAL SOLUTIONS
<p>Lengthening the school day poses operational challenges related to the overtime of transportation, custodial and security staff.</p>	<ul style="list-style-type: none"> • Planning the shift to accelerated courses far in advance, in close collaboration with central office, may help pave the way for creative bus routes or schedules that can help reduce or mitigate additional operational costs.
<p>Students/parents do not see the need to pursue a more demanding course load.</p>	<ul style="list-style-type: none"> • Communication and a desire to seek input can go a long way. 9th grade students and their parents may not be aware of the college course requirements and the potential for early misses in course taking to have long-term consequences. Providing clarity around the rationale for the strategic course scheduling, and making clear the pathway needed to get from Grade 9 to college, can help engage parents as decision-makers and reduce potential resistance.

Design Interactions

Strategic school designs have many interconnected components. Well-designed accelerated course sequences should be integrated with the following design essentials:

- Empowering Curricular, Instruction and Assessment
- Expert-led Collaboration and Professional Learning
- Personalized Time and Attention

Research

- Dynarski, M., Gleason, P., Rangarajan, A., & Wood, R. (1998). Impacts of dropout prevention programs: Final report. A research report from the School Dropout Demonstration Assistance Program evaluation. Princeton, NJ: Mathematica Policy Research, Inc. (New Jersey study).
- Loveless, T. (2008). The misplaced math student: lost in eight-grade algebra. The 2008 Brown Center Report on American Education. Washington, DC: The Brookings Institution.
- Julia B. Smith, "Does an Extra Year Make Any Difference? The Impact of Early Algebra on Long-term Gains in Mathematics Attainment," *Educational Evaluation and Policy Analysis*, 18 no. 2 (1996): 141-153.

Other Resources

- Rollins, Suzy Pepper. *Learning in the Fast Lane: 8 Ways to Put ALL Students on the Road to Academic Success: 8 Ways to Put ALL Students on the Road to Academic Success*. ASCD, 2014.

Accelerated Course Sequencing at Life Academy

OAKLAND UNIFIED SCHOOL DISTRICT – OAKLAND, CALIFORNIA

“Our goal was to get everyone to take Calculus before they left Life Academy—with only eight students ready for Algebra 1 in their freshman year, we knew we had to do something different.”

—Preston Thomas, Founding Principal of Life Academy of Health and Bioscience

Context: Life Academy of Health and Bioscience is a small public high school in Oakland, California. Established in 2001 as an offshoot from an existing high school, Life Academy retained 40% of its staff and filled vacancies largely with teachers new to the profession. Today, Life Academy serves approximately 260 students in grades 9 through 12, and is expanding to a 6-12 program. Life Academy has the highest University of California and California State University acceptance rate of any high school in Oakland.

Purpose: Driven by a deep understanding of the importance of high school math skills for college entry and success, the faculty at Life Academy prioritized all students’ access to and success in Calculus in their four-year high school experience, regardless of their entry point. Accelerated course sequencing for students was provided in combination with a 9th grade focus initiative, which included an advisory program.

MAKING IT WORK: RESOURCE IMPLICATIONS

1. Identification of accelerated course sequences that match to student need.

In Life Academy’s first year, only 8 incoming freshmen were ready for Algebra I. Because so many students were entering behind grade level, the Algebra I course was lengthened as part of an extended student day. Students who needed more intensive support participated in an additional Algebra I class before or after school. Life Academy was able to exercise more flexibility around start and end times because students were not reliant on district-provided transportation.

When these students entered 10th grade, the school leveraged its extended day to provide students with access to two math periods in the context of the extended day, one in Geometry and the other in Algebra II. Through building a strong foundation in Algebra I in 9th grade, and then offering Geometry and Algebra II as concurrent courses in 10th grade, most students were back on track by the time they entered Grade 11.

An advisory program offered a communication vehicle to parents and students about the benefits of these course taking patterns, and how they ultimately supported access to college. For High-School Ready students, students and parents had the option to take Geometry in freshman year as part of the extended day or wait until sophomore year depending on when they felt the student was most likely to succeed.

2. Course offerings are scheduled strategically in order to ensure students can access all required core and enrichment content, and have opportunities to learn in diverse classrooms with peers who are at varying levels of proficiency.

. As Life Academy expanded into the middle grades, the proficiency of their incoming 9th graders increased. Students were deliberately scheduled students into Algebra I blocks to ensure a mix in proficiency levels, which prevented tracking of students into lower or higher level classes or cohorts during the school day.

This meant that students who were not high-school ready were in the same Algebra I course as their ready peers and received a second dose of Algebra I where they could continue to practice skills taught in their first block. This second dose, where possible, was scheduled in line with the geometry class that was accelerated for high-school ready peers. Based on the course sequences Life Academy developed, the vast majority of students were ready to move onto Algebra II by the time they entered 10th grade regardless of incoming proficiency.

Life Academy continued to offer Algebra I and Geometry before school to students looking to maintain electives exposure during the school day. The most common before-school courses included a small group Algebra I course to provide intensive support to incoming 9th grade students most needing individual attention, and an integrated 9/10th grade Geometry class

3. Standards-aligned curriculum to ensure students are exposed to rigorous instructional materials.

The Math sequence at Life Academy was based on the standard course curriculum for high schools, but accelerated by the placement in the student schedule and trajectory. As a result, no additional curriculum or instructional materials were needed.

4. Deliberate assignment of effective teachers as well as ongoing support for staff assigned to accelerated courses.

Teachers for the before-school classes were picked based on mutual agreement; interested teachers volunteered to teach these classes and were selected based on prior effectiveness with students in that content area. These teachers were provided a small stipend for the additional time. All stipends were funding through Gates Foundation funding for the first few years, and then through the California Partnership funding in subsequent years.

Life Academy also prioritized hiring highly qualified math teachers through a partnership with the Stanford Graduate School of Education, through which they built majority of their math department. Given the school's focus on recruiting and retaining teachers with high levels of content expertise, Algebra I teachers were in a better position to provide the instructional differentiation that more heterogeneous classes require.

LEARNING FROM IMPLEMENTATION

In the school's initial model, Life Academy sought to find additional time in all core content areas for students without changing the number of instructional periods teachers were responsible for teaching during the day. To accomplish that, all 9th grade students technically had room in their schedule for 5 courses, but Math, English, and Science took up 4 of 5 periods, where each of those three content areas was the equivalent to 1.3 periods per day relative to the 10th grade schedule. This model was ideal for the first few years where students' incoming proficiency largely warranted additional time in core courses.

RESULTS

Students at Life Academy consistently perform better than the Oakland Unified School District (OUSD) average while serving students with comparable needs: As of 2014, 85% of the students at Life Academy were economically disadvantaged (FRL) compared to the district average of 75%, yet 84% of the students at Life Academy passed the California High School Exit Examination in math compared to an average of 68% in the rest of OUSD.

Life Academy has also made strides in improving its graduation rate and the college readiness of its students. In 2014, the cohort graduation rate at Life Academy was 77% compared to just 61% across the district. In addition, 83% of Life Academy's graduates had completed all the courses required for the University of California and California State University systems, compared to 49% of graduates across the rest of the district.

This focus on college readiness has paid off: Life Academy has the highest University of California and California State University acceptance rate of any high school in Oakland. Graduates have also gone on to universities and colleges including UC Berkeley, Stanford, University of San Francisco, UCLA, UC Davis, Smith College, and San Francisco State.