# Curriculum Alignment Handbook

## A System-Wide Model for Curriculum Alignment Implementation

**University of Central Florida**
**2nd Edition: 2023**

# CURRICULUM ALIGNMENT HANDBOOK

The primary audiences for this Curriculum Alignment handbook are universities, community and state colleges, two- and four-year institutions, institutions that serve as a feeder source of students for other institutions and institutions that have a high transfer student population. This handbook can also be used by K-12 systems, in particular high schools, that have unique access partnerships with post-secondary institutions. The purpose of this handbook is to serve as a guide for unit heads (e.g., department chairs), leaders of faculty centers for teaching and learning, articulation offices, university and college administrators and faculty members who are interested in achieving alignment in gateway and foundational courses that are offered within or across institutions. To undertake this work is to be willing to first look internally at how courses are taught by, for and within your specific academic unit (your department, school or division) before engaging with partners beyond your academic unit.

The handbook is written as a guide for a facilitator with the goal of successfully implementing the alignment work. It provides instruction on developing the alignment team, setting meeting agendas and priorities, managing discussions and ensuring that the course alignment goals are met. The first five sections are written to provide meeting guidance, the last two provide considerations throughout the process and appendices provide sample materials and information that support the process of curriculum alignment.

Within any phase of work, the facilitator can expect that additional topics and agenda items - beyond those identified in this handbook - will be raised for discussion. We understand that discussions can be iterative and circular. It is the task of those in the facilitation role to determine what is relevant to the alignment effort and how the team can address any additional topics that arise. This being the case, the facilitator will ultimately set and reinforce the scope of work. Most importantly, the facilitator's role is to guide the conversation and to help those participating in the conversation stay focused on the goal and purpose of curriculum alignment.

> *The facilitator must manage the conversation. They do not provide the solution, rather they help identify what is correct for students to successfully achieve course learning objectives.*

As a facilitator of this process, we recommend that the individual leading discussions has experience managing group discussions, including appropriately redirecting conversations and conflict resolution. To this end, those who facilitate can additionally benefit from facilitator or mediation training. Please refer to your institution or professional organization for development opportunities.

*It is important for the facilitator to enter into the discussion with humility and respect for all of the faculty members, their respective academic positions and their respective institutions.*

## ACKNOWLEDGEMENTS

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The 2023 edition includes significant revisions that provide additional context, information and guidance for any partnering institutions wishing to engage in and implement the curriculum alignment process. Having collectively facilitated curriculum alignment efforts for over 10 years, those who contributed to this edition include:

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# CURRICULUM ALIGNMENT

## What Is Curriculum Alignment?[1]

Curriculum Alignment (or "CA" for short) is critical to facilitate students' seamless academic transition through courses and to eliminate curriculum gaps and redundancies. In this context, "curriculum" refers to the totality of a course-based learning experience including that which is written, tested and taught. Curriculum Alignment is a reflective process by which an individual faculty member or group of faculty teaching the same course or set of complementary courses undertake discussions and make decisions to ensure congruence between course learning objectives, assessments, instructional activities and content. In this handbook, the focus is on course curriculum that encompasses the following elements (Biggs, 2014; Shubert, 1986; Tyler, 1949):

- Learning objectives or outcomes and purposes,
- Content, learning experiences or learning activities,
- Organization of these experiences in scope and depth, and
- Assessment or evaluation.

As such, an aligned curriculum refers to a "program that is (1) well organized and purposefully designed to facilitate learning, (2) free of academic gaps and needless repetitions, and (3) aligned across lessons, courses, subject areas, and grade levels" (Hidden Curriculum, 2014). Curriculum alignment allows faculty who are experts in their respective fields of study to revisit each aspect of the above and ensure that learning objectives, instructional activities (content), supporting materials and assessments are aligned (Anderson, 2002).

## The Process of Alignment

The process of alignment employs a "backward design model" (Wiggins & McTighe, 2005). In doing so we can determine the alignment problem we are trying to solve and how we will assess for the solution by:[2]

1. Identifying "prerequisite" content and knowledge competencies.
   *What previous skills and strategies should the student have mastered in order to be prepared for the course?*
2. Identifying desired result.
   *What should a student be able to do? What content is worthy of understanding or mastering? What enduring understandings are desired?*
3. Determining acceptable evidence.
   *How will we know if students achieved the desired results? What will we accept as evidence? What will be measured or demonstrated?*
4. Planning learning experiences and instruction.
   *What enabling knowledge and skills will students need in order to perform effectively? What activities will equip students with the necessary knowledge and skills? What will need to be taught? What do we need to accomplish these goals?*

[1] Portions of this section are adapted from the UCF curriculum alignment website, retrieved 4/24/2023 from https://curriculumalignment.ucf.edu/

[2] Adapted from: Wiggins & McTighe, 2005

While the initial efforts to align curriculum can be accomplished within a relatively short period of time, possibly even within an academic year, it is important to stress that the effort should not be rushed. Additional agenda or action items will present themselves and time should be dedicated to address and follow-up on those items. In addition, much of what is covered in this handbook can (and should) be revisited on a recurring, and possibly annual, basis.

## Goals of Curriculum Alignment

The goals of the efforts to align curriculum are:

1. To **synchronize core content and the competencies** gained by students taking courses that are transferable between a partner state college, community college or a university.

2. To **increase the propensity** of community or state college students contemplating lower-level courses for their anticipated major.

3. To ensure that the competencies gained by students taking these courses are **sufficient for successful progression** to a requisite/next level course at any institution, with the **ultimate goal of an academic credential**.

## Values of Curriculum Alignment

The core value of this effort is that we are committed to our students' success. As facilitators, we often refer to these students as "ours" because we acknowledge that a significant number of students complete courses at community colleges, state colleges or universities and transfer or swirl between and among these two- and four-year institutions (Wang & Wickersham, 2014).

While engaging in curriculum alignment discussions with faculty members, we also value:

*We are committed to our students' success.*

- **Collaboration** and **collegiality** to break down the silos in education and create enduring partnerships focused on student transition and success.
- **Community** where educators from each segment work with one another to align the skills, knowledge and abilities students need to make a successful transition from one level to another in the postsecondary journey and to the workforce.
- Student success **data** to identify knowledge and skill gaps evident and work to address these gaps through vertical or internal alignment.
- **Faculty**, who are the **experts** in their respective disciplines, and
- The sanctity of faculty **academic freedom**.

These values support some additional outcomes that we expect from Curriculum Alignment, which are:

- Ensuring that the courses that make up the various pathways of success from a community or state college degree pathway to a university degree are effective,
- Contributing to the success of the national college completion agenda, and
- Producing successful graduates that contribute to the local and state workforce.

## Types of Alignment

Curriculum alignment occurs among and between courses and institutions. As such, there are four types of alignment that are addressed in this handbook. These include internal and inter-institutional alignment that deals with where or by whom the course is taught, coupled with horizontal or vertical alignment that deals with how the course relates to itself or other courses.

### Internal Alignment

With any curriculum alignment effort, we must understand how well courses are aligned within a given institution, whether that is across multiple campuses of a single institution or across multiple sections of a single institutional offering. Internal alignment should be achieved to ensure that, regardless of who is teaching the course, the student will have exposure to the content in a way that prepares them for success and that the faculty are all teaching toward the same, explicit and shared learning objectives. Ideally faculty are using the same textbook, working along the same course schedule and delivering assessments that are the same (particularly any final assessments). Courses that lack internal alignment may produce additional challenges that need to be discussed and addressed when engaging with faculty from outside institutions.

### Inter-Institutional Alignment

As recent research has shown, students are increasingly swirling or attending multiple institutions in pursuit of their degree (McCormick, 2003). If you know your institution and other institutions have shared goals of student progression and completion, inter-institutional alignment brings together faculty members from more than one institution to ensure that there is course alignment among and between those institutions' common courses.

### Horizontal Alignment

Horizontal alignment is the initial goal of Curriculum Alignment, and it encompasses both internal and inter-institutional alignment. This involves alignment of courses that are considered the same across multiple offerings (multiple sections) of a single institution or across multiple institutions. These courses may be the same as a result of common course numbering, articulation agreements, or other transfer course approval processes (Oonge, Nader & Dorman, 2022). To achieve horizontal alignment suggests alignment of learning outcomes and experiences for the same course (Webb, 1997).

### Vertical Alignment

Vertical alignment (Oonge, Nader & Dorman, 2022) supports the goals of Curriculum Alignment, and it can apply to courses offered within a single institution or across two or more institutions. Vertical alignment ensures that learners' experience of knowledge and new skills occur incrementally and in a way that enhances and literally "builds-upon" preceding learning encounters (Watermeyer, 2011). This means that knowledge and skills gained in a prerequisite course (literally or simply taken as a foundational course) prepare the student for advancement into next level, target or requisite courses. Most often vertical alignment occurs between lower- and upper-level courses. This is particularly important for STEM courses and courses that are sequential and ascending in complexity, undergirding the need for an aligned curriculum that minimizes gaps and content redundancies.

**The Role of Faculty, Advisors and Facilitators**

Faculty, advisors and administrators strive for students to have a seamless pathway towards degree completion. To make that vision a reality, it is important to review shared curriculum at a course and programmatic level to ensure students are well prepared to advance in the courses of their degree.

*With appropriate and adequate discussion, consultation and decision-making by the faculty, an aligned curriculum ensures that students have access to the tools to be successful.*

Faculty members play a vital role in this work because they hold primary responsibility for the curriculum. Faculty engagement in conversations about course learning objectives, pedagogy and assessment ensures a smoother transition for students from course-to-course. Ideally, the faculty members who participate should be those who have direct knowledge of the course (they teach the course in question or a requisite course that builds on it), they should have direct support of their department head, they should have a platform to be able to share information and updates with their department/program faculty and they should be willing to recommend and make curricular changes.

*Faculty members have the academic freedom to teach courses the way they believe is best. When a collective of discipline experts (the faculty members) agree on what needs to be taught, how it is taught and how it is assessed, they significantly contribute to the success of the student.*

Among the faculty members who engage in curriculum alignment, a particularly important participant is the discipline's program director or the faculty member who is primarily responsible for coordination of the program that offers the course. They provide a unique administrative perspective, can communicate actions and successes of alignment and can serve as agents for any change that may need to take place with the course or within the program offering the course.

Academic advisors or student success coaches provide important perspectives to the curriculum alignment process. They are often among the first who interact with students, and through alignment discussions what advisors/coaches learn about the importance of foundational and successive course content and knowledge will aid them in student advising. Additionally, advisors/coaches are most knowledgeable of academic policies, and they serve as a conduit of information to the broader advising community.

The facilitator plays a most important role. Ideally the facilitator is someone who is not connected to the discipline, so that he or she can ask both broad, big-picture questions and the challenging questions with the only investment being student success. The facilitator is the person responsible for guiding the conversation, preparing for the alignment meetings and discussions and following up on action items. For a general list of responsibilities the facilitator should have or oversee, see Appendix A.

**<u>Curriculum Alignment Discipline Lead</u>**

We indicate that it is preferred that the facilitator of the alignment discussions is not an expert in the discipline being discussed, so it is helpful to identify someone from among the faculty involved to assist with the meetings and action items. As such you may want to identify a discipline lead from among the group to serve as a content expert and to assist with or lead discussions within their discipline.

This individual can be selected from among the group and asked to volunteer for the role, or the individual may be elected by their peers. Ideally the person who serves in this role will take an equitable and impartial approach and contribute perspectives to the discussion that are discipline-specific and student-success centered. The role and responsibilities of the Discipline Lead include:

- Lead or co-lead CA discussions during discipline meetings
- Assist with creating agendas for CA discipline meetings.
- Contribute perspectives to the discussions that are student-centered and inclusive of others and without bias based on their personal role, division or institution.
- Remain engaged between scheduled discipline meetings to:
    - Follow-up on action items to ensure follow-through.
    - Manage any discussions that take place between meetings.
    - Function as a liaison between the discipline faculty and CA administration to identify and provide support and resources needed to accomplish goals.
- Provide an annual summary that may include discipline group goals, accomplishments, and/or challenges as appropriate.
- Monitor trends or new directions related to the discipline that is informed by professional organizations, etc.

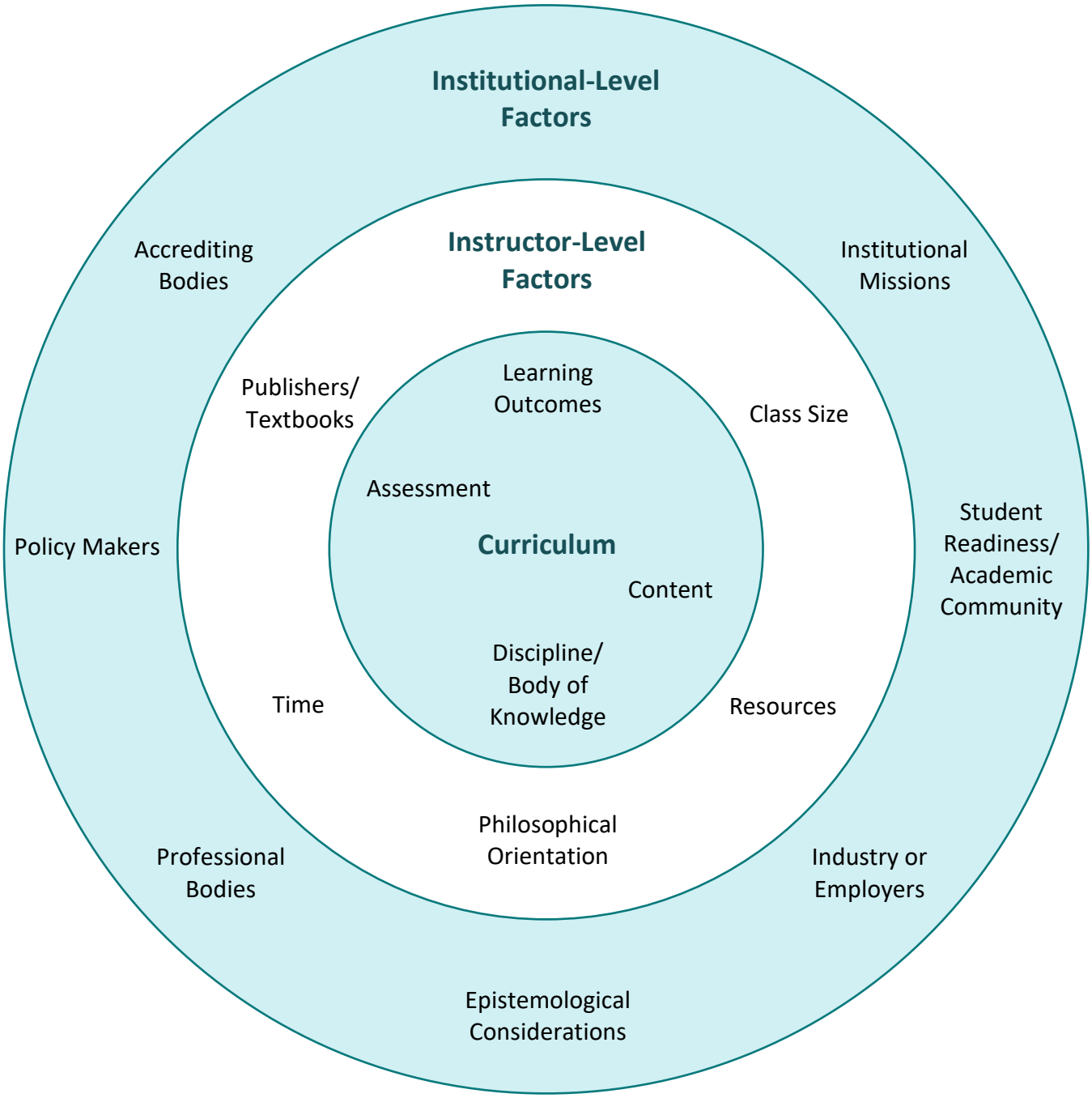
Those who serve in this role are also ideal candidates to serve on larger roles, such as planning committees for meetings, contributing authors to publications or liaisons for research engagements.

**Factors Influencing Curriculum Alignment and Development**

Curriculum Alignment within, across or between institutions is influenced by many factors. These factors intersect and interact to inform the final curriculum that is implemented in a classroom, and it is important to understand and acknowledge the factors over which faculty members, either individually or collectively, have control and those over which they have little or no control.

Figure 1 illustrates the various factors at the institutional level (macro level), those at the individual level (instructor level) and those at the curriculum level (micro level). Knowing the types and levels of influence over curriculum alignment can both complement or complicate the alignment process. At the institutional level, alignment work can be used to support overarching student success initiatives or to develop articulation agreements. At the instructor level, this work provides opportunity for professional and pedagogical development. At the curriculum level, this work provides resources and insights to improve the classroom experience.

**Figure 1:** Factors Influencing Curriculum Alignment




**Determining the Courses to be Aligned**

It is likely that by initiating the curriculum alignment process, your institution or institutions have already identified the course or courses that need to be aligned. To ensure you have identified courses that can most effectively engage in these curriculum alignment efforts and have the greatest opportunity for impact, consider the following:

- First, is your course aligned within your institution (is it internally and horizontally aligned)? If it is not, this is your starting point for curriculum alignments, which is to achieve alignment of the course within your institution.

- Is the course a part of any shared program or general education requirement?
- Does the course serve as literal prerequisite, or does it provide introductory or foundational knowledge that is necessary for success in a more advanced course?
- Is the course considered a gateway to a major or academic credential?
- Is the course offered at every institution engaging in alignment discussions?

**Determining What Information and Data to Share**

Throughout the process you will be sharing information; however, to kick off discussions you will want to collect readily available materials, data and information to share with the participants of Curriculum Alignment. This can include course information from the state and should definitely include information from the classroom. It also includes data that compare the course either within or between institutions. All of this will provide basic insights into where courses could be considered aligned or misaligned, will serve as a benchmark of information and most importantly will help initiate discussions. Examples of the type of information to share include:

- Course descriptions: state and/or institutional
- A course matrix (see Appendix B) that shows course prefix, number, title, hours and pre-/co-requisites.
- Current course syllabi
- Course and institutional data

Each of the above items and their purpose are described in more detail in the following sections.

## Communications with Stakeholders

As you discuss changes to courses or curriculum, you need to ensure that the appropriate stakeholders are aware of and support the alignment effort. These individuals or groups need to be kept informed of the progress being made, the needs of and/or barriers to the effort and any outcomes based on assessments of the effort.

Those who should be made aware and informed of the curriculum alignment effort include, but are not limited to:

- Program level heads (this includes chairs, directors or discipline specific deans to ensure information, status, updates and changes are shared with the general faculty at discipline meetings)
- Faculty Senate (and appropriate subcommittees)
- Steering Committees or Advisory Boards
- Curriculum Committees
- Academic Advising Council, Academic Coaches or institutional Advising Support Offices
- Institutional Knowledge Management (including those who collect course and student data)
- Academic administrators (including associate deans, deans, chief academic officers, vice presidents/provosts)
- Faculty centers that support teaching and instruction

## History of Curriculum Alignment at the University of Central Florida

The Curriculum Alignment Initiative originated in central Florida as a partnership between a four-year university and local two-year colleges. In November 2005, the presidents of the University of Central Florida (UCF) and the then four partner state colleges signed a joint resolution, which eventually led to the DirectConnect to UCF© transfer partnership program. This program guaranteed entry into UCF once certain criteria were met for either the Associate in Arts or select, articulated Associates in Science degrees. As a result, UCF became a significant destination university for transfer students across Florida. This partnership and the increased number of transfer students prompted the efforts of the Curriculum Alignment initiative.

Understanding that course completion is key to student success, in 2006, faculty and administrators from those partner colleges and UCF began joint discussions about shared curriculum to ensure course content and competencies were aligned, regardless of where the course was attempted. Their initial focus was on disciplines that supported national, state and local initiatives to graduate more students in STEM (Science, Technology, Engineering and Mathematics). As such, they identified lower-level prerequisite and foundational courses in mathematics, chemistry, biology and physics that were offered across all institutions to be the first courses to discuss for alignment.

College and UCF faculty from each of the original disciplines met with their peers to review curriculum and discuss ways to align course content so transfer students would be better and equally prepared for upper division courses at the university. The curriculum alignment effort resulted in an unprecedented level of cooperation between partner colleges and the university, and most importantly this effort has improved student success rates. Today these meetings continue and there are seven partners in curriculum alignment, which include the University of Central Florida, the College of Central Florida, Daytona State College, Eastern Florida State College, Lake Sumter State College, Seminole State College and Valencia College. In addition, course alignment extends beyond the original STEM disciplines to include lower-level courses in accounting, theatre, writing, speech and computer science, with more disciplines being explored for inclusion in the effort. Recognizing the need to engage with instructors at the high school level, K-12 teachers and administrators are also invited to join curriculum alignment discussions as they help high school students prepare for the transition to an institution of higher education.

In 2021, these partnership efforts were recognized, and the Curriculum Alignment Initiative was awarded the John N. Gardner Institutional Excellence for Students in Transition Award. Today, we continue our collaboration and these faculty-driven efforts with student success our central tenet.

# I - INTRODUCE CURRICULUM ALIGNMENT

**Introduce Curriculum Alignment**
*Agenda Items:*

- Introductions and role of participants and facilitator
    - If multiple units or institutions are engaged, identify a faculty lead for each area
- Review of purpose, goals and values
- Acknowledge limitations
- Review shared information:
    - Course Descriptions,
    - Course Matrix
    - Data
- Reaffirm courses to be aligned (should others be included?)

*For next meeting:* Request representative course syllabi from each faculty member (internal alignment) or each institution (inter-institutional alignment)

**Review the Purpose, Goals and Values of Curriculum Alignment**

It is important at this first meeting to review the purpose, goals and values of Curriculum Alignment. To do this, let's examine the goals more closely:

***Goal 1:*** To **synchronize core content and the competencies** gained by students taking courses that are transferable between a partner state college, community college or a university.

The intent is to ensure that a student has the same access to content and competencies for success in the course as it is taught by any faculty member, regardless of who is teaching the course. From the faculty perspective, we know that faculty members change, adjuncts or part-time faculty are hired to teach courses and graduate students are employed to teach courses. We also know that course content may change over time. All of this reinforces the purpose of this goal which is to ensure consistency among and between course offerings. The course can be taught within a single institution or can be one that is transferable between a partner state college, community college or a university. Because we know that students will enroll at multiple institutions (otherwise known as "swirling"), particularly if there are options available in their immediate region, the intent of this goal is to ensure that a student who completes an introductory or foundational course at one institution has the same access to course content and coverage to prepare them for the next course offered by that institution or any of the institutions engaging in the alignment effort.

***Goal 2:*** To **increase the propensity** of community or state college students contemplating lower-level courses for their anticipated major.

This goal is focused on courses that are aligned between institutions or campuses. When the goal is a degree that may not be offered at the community or state college of initial enrollment, students are guided to complete courses at a community or state college with the intent that these courses

prepare them to advance in their degree; in other words, these courses should be exposing students to content that prepares them for successful transfer. Knowing that the courses in which they are enrolled are a part of an alignment effort reinforces and ensures that the content taken at a community or state college enhances major and transfer readiness and prepares them for successful transfer into upper-division courses.

***Goal 3:*** To ensure that the competencies gained by students taking these courses are **sufficient for successful progression** to a requisite/next level course at any institution, with the **ultimate goal of an academic credential**.

The intent of alignment is ultimately to prepare a student for transfer success in the final courses that will result in an academic credential such as a certificate, associate degree, baccalaureate degree or any final academic credential to which the aligned courses contribute. Knowing that the course content is aligned, regardless of where the courses are completed, ensures that the student has been exposed to sufficient background knowledge to successfully progress into the next course and ensures that they are prepared for all of the requirements of the credential.

The values of Curriculum Alignment support these goals, with the core value being that we are **committed to our students' success**. Recall that the values of alignment center on the individuals participating in the alignment work; are focused on *collaboration, collegiality and community*; and are logical in that decisions are based on *data and expertise*, while adhering to the overarching tenant of *academic freedom.*

**Acknowledge Limitations**

By engaging in alignment work, faculty members collectively determine what needs to be taught in a course so the student can both master their course and be prepared for any later courses that are dependent on that knowledge.

To acknowledge the limitations of the curriculum alignment work is to explicitly call out that you understand there are things *within the control of the faculty members* teaching the courses and that there are things *over which faculty members have little to no control.* For example, the faculty may have little to no influence over who is admitted to the institution, but they can control who enrolls into classes through prerequisite requirements and they have some control over the content that is taught in the courses. Specifically recalling the factors influencing curriculum alignment (see Figure 1), the institutional-level influences are generally those over which the faculty have little to no control. Some of the known variables and aspects that are often outside of the faculty's control include (but are not limited to) the following:

- Institutional missions
- Institution-specific admissions protocol
- Institution-specific performance metrics
- Classroom and institution environmental differences
- Financial and socioeconomic status of admitted students
- Services available that support student success

Understanding these aspects is particularly important when you engage in an alignment effort that is

inter-institutional, when discussing any data and when discussions shift to why students are successful (or not) in a particular course.

**Acknowledge Opportunities**

When we shift the focus to aspects of instruction over which faculty members should or do have control, we identify the following:

- Internal curriculum alignment (inter-departmental/intra-institutional) or lack thereof
- Use (or not) of placement tests or course preassessments
- Course changes
- Course modality and delivery
- Course tools, supplements and materials

Faculty members have control over their pedagogical approach, the specific content and topics that are covered in the course and the assignments and examinations that are used to determine the grade. They determine how and in what style or manner a course is taught: this is the heart of academic freedom. While what is taught and how it is taught is within the individual faculty member's control, we know that some courses – particularly gateway, foundational or general education courses – need to cover specific content, need to be evaluated to assess mastery of that content and are often taught according to decisions made by a collective or committee of faculty.

**Review Shared Information**

In the Curriculum Alignment process, there are tools that should be shared and discussed to aid in the process of any collective decision-making about what needs to be taught in the courses being aligned. Some of these tools are quite basic and readily available, including course descriptions, course learning objectives and syllabi. Other tools are developed based on pulling together existing information. One example of this is the Course Matrix. Institutional and course data provide objective information to be shared and interpreted through the lenses of course preparation and success. Each is summarized below and will be discussed in more depth in the following sections.

**Course Matrix**

A quick reference tool for each course discussed as a part of an inter-institutional curriculum alignment effort is a table that provides a simple display of basic course information for each institution. This table includes the following sort of information: course prefix and number, course title, credit hours (overall/credit bearing and contact hours), any pre- or co-requisite requirements (include course prefix, number, credit hours, and minimum grade requirements). The template found in Appendix B can be used as a guide.

*When reviewing the matrix, consider if the following are aligned: credit hours, prerequisites, prerequisite grade minimums, etc.*

## FLORIDA'S SCNS

Within the state of Florida, the Florida Department of Education's (FLDOE) Statewide Course Numbering System (SCNS) provides course details, including prefix, number and a general description of course topics, that apply to offerings across all Florida College System (FCS) and State University System (SUS) institutions.

This FLDOE system promotes articulation and facilitates institutions in the use of common categorization and numbering of courses. Lower division credit is accepted at any SCNS institution when the two institutions offer the same commonly numbered course. An example course is found in Appendix C.

These SCNS course descriptions include an inventory of prerequisite skills, intended students, level, major topics, special requirements, and course guidelines (outcomes or operations).

http://scns.fldoe.org/scns/public/pb_text_only.jsp

**Course Descriptions and Learning Objectives**

If any statewide or inter-institutional course description or guidelines are already established, this information should be shared; otherwise, catalog and syllabi course descriptions should be shared for those courses that are seeking alignment. Some states or educational systems already have established course information. As an example, the information at the left provides more insights about the state of Florida's Statewide Course Numbering System, also known as the common numbering system.

*While the words and phrases (semantics) used may not be exactly the same, when reviewing course descriptions and learning objectives to goal is to ensure that the intended objectives are aligned.*

**Course and Institutional Data**

Sharing data early in the process may seem risky, but it starts the conversation with objective information so that everyone knows how their students are succeeding (or not) in the course being aligned. The type of data to share provides context for these discussions and are ideally provided by or available from institutional resources (e.g., data management and reporting offices).

If the alignment effort is between two institutions, consider the following data:

- What are the student transfer rates?
- How many students are admitted to each institution?
- What are the class sizes?
- In what modality are the classes taught?

More specifically, the data provide insights about student progression and success involving the course (or courses) to be aligned.

*If sharing data between institutions, recalling institutional differences is important.*

If the alignment effort is undertaken to ensure a foundation course provides preparation for a mastery course, consider the following data:

- What are the grades of students in the foundation course compared to the mastery course?
- Who are the students enrolling into these courses?
- What are grades earned in prerequisite courses?

These data establish a baseline to assess the course or courses in question. It is important to note that much of this data only speaks to one piece (one aspect, one variable) of the information that contributes to successful student progression. Whatever institutional or course-related data you have available that speaks to the courses being aligned should be shared.

## FACILITATION NOTES

*When discussing institution or course similarities and differences, keep in mind that the faculty members engaging in these conversations are equal partners in student success.*

*When sharing information, be sure not to dictate or imply that one instructor's approach is "right" vs "wrong". All have entered into the conversation on equal footing!*

*Be aware of any "power dynamics" that may occur simply based on role, title or institution affiliation.*

*When discussing any differences, remember to ask "does it matter" and then remind them that it is for them to decide whether or not it does! For example: Institution X's course covers this topic, but Institution Y doesn't… as it pertains to the students' ability to be successful in this course and any courses dependent on it, does it matter?*

*Academic Freedom. Faculty members have control over their pedagogical approach and course content… however… if the course is a gateway, foundational or general education course that requires specific content be covered and evaluated, this establishes the requirement that the faculty member teach a certain way. The decision about what and how it is taught is collectively determined by the content that must be covered (as agreed upon via the Curriculum Alignment process), and the faculty contribute to how the course can be taught.*

## II - DATA, ALIGNMENT AND TOOLS

**Data, Alignment and Tools**
*Agenda Items:*

- Deeper discussion of course data
- Internal alignment
- Horizontal and vertical alignment
- Syllabi review
- Introduce worksheet for course topics and objectives
    - Discuss Learning Objectives

*For next meeting:* Assign one of the faculty members or the discipline lead the task of populating the learning objectives and topics (and possible sub-topics) of the worksheet for discussion at the next meeting. This can be done based on their own or a representative syllabus.

### Deeper Discussion of the Data

If needed, this meeting should be used to review the data that were previously shared. Recall the following questions about the types of data that can be collected and discussed:

- What are the student transfer rates?
- How many students are admitted to each institution?
- What are the class sizes? In what modality are the classes taught?
- What are the grades of students in the foundation course compared to the mastery course?
- Who are the students enrolling into these courses?
- What are grades earned in prerequisite courses?

*When reviewing the data to answer these questions, also consider how pedagogy can influence student outcomes.*

Beyond what has already been shared, what additional data will be helpful and where can they be found? For any data and analyses you intend to share, be sure to know you have the resource to collect, analyze, store, replicate and share any data. The following page describes data collected via course sequence data sets, which UCF uses to provide information about achievement gaps and success by student type.

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FACILITATION NOTES - DATA

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*Data are objective; they present information, sometimes without context. Use the data to start the conversation about what's aligned and what's not, what's working and what is not working.*

*When sharing data on grades and/or assessments, be sure not to imply that data show that "you are doing it badly" or "you are doing it better". Instead: "What do you think is contributing to students being successful (or not) in this course"*

**Institutional Course Sequence Data – A University Example**
With the intent of understanding the impact and effectiveness of the alignment efforts on students' success, the faculty engaged in Curriculum Alignment identified course sequences of interest where the courses being discussed for alignment served as the first courses of analysis and a course that is dependent on that content was chosen as the second course of analysis. Student success in these two-course sequences is rudimentarily represented by grades earned in the prerequisite course (the first course) and subsequent grades earned in the target course (the second courses) over the span of an academic year (summer, fall, spring semesters). From the available data, the first course could be completed at any institution and the second course was completed at the university.

*The sequence data provide information about how students do in a target course based on the horizontally aligned prerequisite course. The sequence data provide insight into vertical alignment.*

Working with institutional data support offices, the university developed this two-course sequence data to examine several variables, including:

- Institution where the prerequisite course was attempted;
- Course grades, where "successful" grades are those of A, B or C and "unsuccessful" grades ae those of C-, D, F or W; and
- Recency of attempt by noting the term of enrollment in the prerequisite and target courses.

The two-course sequence example at the right is used to illustrate results based on the following questions:

- Of the students who completed Intro to Biology (overall or at institution "X"), how did they do in Genetics?
- How does success in Genetics look based on both where Intro to Biology was completed and the type of student who completed the courses (e.g., FTIC or Transfer)?
- How do individual partner college attempts in Intro to Biology compare to students who attempted Intro to Biology at the university?
- How does the gap in time between completion of Intro to Biology and Genetics affect student grades in Genetics?
- What does the prerequisite grade in Intro to Biology tell me about a student's ability to be successful in Genetics?

The answers to these questions, as evidenced by the data, are found in Appendix D.

## EXAMPLE COURSE SEQUENCE

**PR: Intro to Biology**
a prerequisite course completed at any institution

**Prerequisite Courses** are the courses being discussed for horizontal alignment that provide introductory, gateway or foundational content and that will be built upon in later courses. While they are often literal prerequisite courses, this is not a requirement. The goal is that it is a course that should be completed prior to enrollment in the target course.

**Target: Genetics**
a target course completed
at the receiving university

**Target Courses** are the courses that have some dependence on and build upon the content delivered in a prerequisite course. This may also be referred to as an "advanced", "next-level" or "requisite" course.

**Revisiting and Understanding the Types of Alignment**

When we discuss curriculum alignment, it is important to share the four types of alignment: internal and inter-institutional, horizontal and vertical.

**Internal Alignment**

Recall that internal alignment deals exclusively with faculty and courses from the same institution. The types of questions or prompts that apply here include the following:

- Are the faculty who teach these courses coordinated in any way?
- Do all faculty within that institution know and agree on the course objectives?
- Are they teaching toward those objectives?
- Are they covering the same topics?
- Are they using the same textbook and/or course materials?
- What common assignments or examinations exist in every offering?

**Inter-Institutional Alignment**

Recall that inter-institutional alignment deals with discussions of the same course that is taught at different institutions. All of the questions that pertain to internal alignment apply here, but you should keep in mind that institutional differences over which faculty have no control will also play a part in these discussions.

**Horizontal Alignment**

While is can be perceived as similar to internal alignment, horizontal alignment pertains to the course itself whether it is at a single institution (thus paired with internal alignment) or across multiple institutions. The process of aligning curriculum is based around horizontal alignment and thus supports the initial goal of Curriculum Alignment, which is to synchronize core content and the competencies. The types of questions asked regarding internal alignment apply here and should include the following:

- What are the *shared* course objectives, topics, course materials, etc.?
- What are the institutional differences that need to be acknowledged?

**Vertical Alignment**

We introduce vertical alignment here, but a deeper discussion should really only be engaged in once horizontal alignment is generally understood. Discussions of vertical alignment focus on ensuring that the content delivered in the aligned, "prerequisite" course is adequate and appropriate for a student to advance in the curriculum. More on this in section four.

**Syllabi Review**

The course syllabus is the essential document provided to the students that communicates course learning objectives, weekly topics (or course outline), assessment methods and directions for success in the course. Course syllabi from each institution involved in the alignment process should be collected and shared. At some institutions, syllabi are based on an overarching course outline, developed by a faculty committee and identifying the objectives and topics for a course. Where these "framework" types of syllabi are used, these should be shared as well.

Reviewing each other's syllabi serves to reinforce what is taught, provides access to insights about what is covered and also makes clear where there may be differences in instruction. The goal of the syllabus review encompasses all of this.

*When reviewing course syllabi, consider if the following are aligned: textbooks, lab/ recitation/ discussion requirements, etc.*

**Course Learning Objectives and Topics Worksheet**

Found in Appendix E, the Course Learning Objectives and Topics Worksheet is used to guide discussions about learning objectives and course topics. At this stage we introduce the worksheet and review the information it will contain. More details about this worksheet, its use and its purpose are provided in the next section.

*The outline of topics that are identified in the course syllabus can be used as a reference point when you enter into discussions about course topics and learning objectives!*

## III - HORIZONTAL ALIGNMENT:
## IDENTIFY COURSE LEARNING OBJECTIVES AND TOPICS

**Horizontal Alignment - Identify Course Learning Objectives and Topics**
*Agenda Items:*

- Individual courses and the overall curriculum
- Course learning objectives
- Course topics

*For next meeting:* Identify target/ next level courses and faculty members who teach them and have those faculty identify the relevance of aligned course content

### Individual Courses and the Overall Curriculum

Faculty members engaged in the curriculum alignment process should recognize how the course being discussed for alignment contributes to the overall academic program and the program's learning objectives.

#### Academic Pathways and Curriculum Mapping

Most academic pathways are established by the institution or unit offering the program and are developed to aid students in choosing courses that are important for completion of their credential, whether that is a certificate or a degree. By selecting a pathway, students are able to identify and enroll into the required courses in an appropriate order and with efficiency toward completion of the credential.

Faculty members should be aware of how the courses map to the overall program curriculum and how they map to the program-level learning outcomes. The methodology to determine how a course is mapped within the curriculum can be summarized as follows (Matveev, Hamilton & Zapatero, 2011):

- **Is it an introductory course?** One on which other content and knowledge will be based and where "instruction and learning activities focus on basic knowledge, skills, and/or complexities and entry-level complexities: an introductory course."
- **Is it an emphasized course?** One that builds upon previous, baseline knowledge where "instruction and learning activities concentrate on enhancing and strengthening knowledge, skills, and expanding complexity."
- **Is it a reinforcing course?** One that expands on mastered knowledge and where "instructional learning activities continue to build upon previous competencies with increased complexity."
- **Is it an advanced course?** One for which "students are expected to possess an advanced level of knowledge, skill, or competency.... [and where] instructional and learning activities focus on the use of the content or skills in multiple contexts and at multiple levels of complexity."

While each of the above type of courses may be discussed as a part of the alignment effort, you are most likely to focus your efforts on the first three.

As you consider the purpose of the courses that make up a program of study and the courses you are aligning, you must also take into consideration any local or state degree and course requirements the institutions may be required to adopt. The example to the right illustrates three separate requirements within the state of Florida. We see here that state-level oversight explicitly identifies the common course requirements of degrees at every public institution in the state, and as such, this sort of state-level oversight provides a means to identify courses that can be discussed for alignment.

**Course Learning Objectives and Topics**

After the initial information and data about the courses being aligned have been shared, the next step – and cornerstone of curriculum alignment work – is to align the topics covered that support the course learning objectives.

> *The focal work of the Curriculum Alignment effort is that the faculty will agree upon the learning objectives for a course and will agree upon the topics that are covered to meet those course objectives.*

We start with aligning the course learning objectives. This work is designed to collectively determine and agree upon what a student should be able to do (or master) once they complete the course. These individual course objectives also contribute to the overall program of which the course is a part.

The template found in Appendix E provides a worksheet that can be used to:

- Identify the course learning objectives;
- Develop a list of topics (and subtopics) that must be covered to meet the learning objectives; and
- Engage in more in-depth discussion around relevance, depth of coverage and rigor.

To initiate and guide discussions, the worksheet should be pre-populated by a faculty participant who can pull the initial course learning objectives and topics from a representative syllabus.

As you enter into conversations about course objective alignment, faculty members should consider how the course contributes the program's academic pathway, specifically if it is used or required as a part of a technical or career program, an

## FLORIDA'S DEGREE REQUIREMENTS

In 1996, the Florida established a list of Common Prerequisite courses (primarily lower-division courses) for each university degree program that identifies required courses that must be completed to be admitted into upper division programs, are accepted by all universities, and are applied toward degree completion.

As of 2013, all Florida College System (FCS) associate degree-seeking students are required to declare one of eight Academic Pathways (aka Meta-Major), which are a collection of academic programs that have common or related courses that prepare students for their intended academic and career goals.

In 2013, all degree seeking students are required to complete one of Mathematics Pathway aligns math courses to programs, meta-majors, and careers. Each mathematics pathway consists of a common, core course.

*Florida Statute 1007.25 (9); Florida College System Rule 6A-10.024;*

associate's degree or an academic pathway in preparation for a bachelor's degree. This is necessary so that those engaging in the discussion understand the course's contribution to academic program's learning objectives. Specifically, to understand – per Curriculum Mapping – whether the level of instruction is introduced, emphasized, reinforced or advanced (Matveev, Hamilton & Zapatero, 2011).

*Who are the students enrolling into the course and why?*

*How does the course contribute to the overall credential and where does it fit into the program's plan of study?*

**Course Learning Objectives**

Statements of student learning objective "clearly state the expected knowledge, skills, attitudes, competencies, and habits of mind that students are expected to acquire" at an institution of higher education, and "transparent student learning outcomes statements are (NILOA, 2011):

- Specific to institutional level and/or program level
- Clearly expressed and understandable by multiple audiences
- Prominently posted at or linked to multiple places across the website
- Updated regularly to reflect current outcomes
- Receptive to feedback or comments on the quality and utility of the information provided"

For each course, those engaged in the curriculum alignment process will work to identify the agreed-upon course learning objectives that are important for mastery of the course, again focusing on whether that content is introductory, used to emphasize or reinforces prior knowledge in preparation for requisite course mastery or for completion of the program. We recommend starting this conversation using a representative outline of course learning objectives pulled from a single syllabus. Using the template provided in Appendix E, we record these on the Learning Objectives and Topics worksheet so there is documentation of discussions and, after a general consensus is reached, these agreed upon outcomes can be easily referred to as the faculty members engage in ongoing discussions about topics, depth of coverage, rigor and relevance.

*As you document the course learning objectives and topics, also keep in mind how the course is being taught and how it is being assessed.*

**Topics and Subtopics**

To meet the course learning objectives, multiple topics are covered in the course. Identifying, sharing and agreeing upon the individual topics that are covered throughout the course is the bulk of the Curriculum Alignment work. As with the initial discussion of learning objectives, this work is best initiated by using the topics covered in a representative course syllabus. A faculty member should be identified and assigned to populate the template in Appendix E with that course's weekly topic outline.

> *A goal of curriculum alignment is to ensure that the competencies gained by students taking these courses are sufficient for successful progression to a requisite/next level course at any institution, with the ultimate goal of an academic credential.*

Once a consensus is reached, additional levels of discussion about these topics can focus on the type of coverage (or how important the topic is to the course), how extensively or deeply the topic is covered, and how the topic is (or may be) relevant to target courses. Examples of each are discussed in depth below and are also found within the worksheet in Appendix E.

**Type of Coverage**

By overall topic or by specific sub-topic, you will want to have the faculty members assess the relevant importance of what is covered in the course, or what we refer to as "type" of coverage. While the specific coding can be established by the alignment group, these can be designated as follows:

- Mandatory (M) – the topic must be covered in the course and is important to meet the course learning objectives.
- Optional (O) – the topic may be covered but is not required to meet the course learning objectives.
- Overview (V) – the topic is covered, but only as an introduction because the content will be covered more in-depth in another course (or courses).
- Review (R) – the topic is covered as a review of content that was covered in a prior course.

**Depth of Coverage**

Often when discussing the relevant importance of the topics covered in a course, discussions will turn to how much time or how deeply the topic is covered. Again, while the actual codes can be established by the group, examples of how the depth of coverage can be classified is as follows:

- Detailed (D) – e.g., one or more full course meeting is dedicated to this topic, assignments and assessments are based on this topic, five or more contact hours are dedicated to this topic.
- Overview (O) – e.g., three or fewer contact hours are dedicated to this topic, it is not assessed.

**Relevance**

While this is discussed more with respect to vertical alignment, when discussions include the importance of topics as they contribute to target courses, an additional grid should be included that shows how the topic or subtopic is relevant to student learning and success in those later courses. How the topic is classified is relative to what is expected and taught in the target course; therefore, it is important to have a faculty member who teaches the target course complete this aspect of the worksheet. The codes for relevance can be as follows:

- High (H) – the topic covered is highly important to a student's ability to be successful in the target course.
- Medium (M) – the topic is moderately important to success in the target course.
- Low (L) – the topic covered is not particularly important to success in the target course.

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FACILITATION NOTES

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*When guiding discussions, be sure not to dictate or imply the way decisions or actions should take place, let the faculty determine this.*

*If there are differences in the course objectives or topics, it's better to ask the faculty members, "Does this matter?" rather than to insert your opinion on the topic. Let the faculty members determine if it matters!*

## IV - VERTICAL ALIGNMENT: A DEEPER DIVE

**Vertical Alignment – A Deeper Dive**
*Agenda Items:*

- Aligned course content as it relates to the target courses
- Course sequence data
- Discuss additional opportunities for course improvements

*For next meeting:* Share examples of assessments (interim and final)

**What Courses are Dependent on the Aligned Courses**

Recall that vertical alignment focuses on ensuring that the topics covered in the "prerequisite" course are adequate and appropriate for students to advance in the curriculum to a target course (or courses). We place "prerequisite" in quotes because sometimes this vertical alignment may involve courses that are not enforced prerequisites but are foundational or gateway courses that may be taken at any point prior to the target course.

Using example target and prerequisite courses, we pose the following sort of questions (and answers) to consider when thinking about vertical alignment:

- *What are the target courses that are dependent on the content of the aligned courses?*
  In engineering, **statics** (the target course) is a gateway or cornerstone course for the degree. The **physics with calculus** course is a very important prerequisite to the **statics** course. Students who are successful in **physics with calculus** are set-up for success in **statics**.

- *What content of the aligned course is most important to the target course?*
  The **introductory biology** course covers topics that are foundational for success in a **genetics** (the target course) course. The **genetics** course does not class spend time reviewing the important biology topics, instead it focuses on related but course-specific and applicable topics in **genetics**. We need to ensure that the **introductory biology** course covers specific, foundational skills and topics for students to be successful in **genetics**.

- *What content of the aligned course is most important to or for the academic credential?*
  The general education **speech** course develops skills and approaches that students will use at multiple points in time while they are completing their program. While the next course into which the student enrolls may not have any requirement for public speaking, the student will be expected to present their laboratory findings to a group.

- *What content is missing from – and should be offered by – the aligned course for successful progression into the target course?*
  Students who complete an advanced level **accounting** course (the target course) that covers managerial costing and pricing decisions continually seem to be deficient in **basic accounting**

**principles** that are supposed to be covered in the introductory course being aligned. How might those topics be better or more deeply assessed in the **basic accounting principles** course?

Once the target courses for vertical alignment are identified, the faculty members who teach those courses should be provided the objectives and topics worksheet of the prerequisite courses you are aligning. In doing so they will assist the alignment effort by identifying the topics and content that are most relevant to the target course. For the faculty engaging in vertical course alignment discussions, this exercise provides explicit connections between what is being taught in the aligned, prerequisite course and student preparation for success in later, target courses.

**Revisit Course Sequence Data**

The target courses you identify are obvious courses to include in any course sequence analysis. Consider the information previously shared about university course sequence data and the examples found in Appendix D.

## FACILITATION NOTES - TERMINOLOGY

*As you engage in curriculum alignment work with your disciplines, one aspect you may encounter is a hesitancy around the terminology used in this handbook. Terms like "course topics and subtopics" may not resonate with the faculty but "course values" will because it is commonly used by faculty of the discipline to describe the course learning objectives and materials.*

*When discussing the importance of coverage (e.g., review, overview, mandatory, etc.), rigor, depth or relevance what do your faculty mean by the various classification "codes"? Is there a better way to describe and note what is meant by the level of coverage, rigor, depth or relevance? Any "codes" provided in this handbook are provided as examples to get you started.*

*In any case where your faculty agree on different but commonly understood terminology, use this! This will make conversations about the specific goals easier to comprehend and eliminate a communication barrier. Whenever you do this, be certain to ensure that the common language is operationalized (spelled out), agreed upon and available for reference.*

## V - IDENTIFY ASSESSMENTS AND REVIEW PEDAGOGY

**Identifying Assessments and Reviewing Pedagogy**
*Agenda Items:*

- Reinforcement of the purpose of alignment (see goals, values, etc).
- Identify basic assessments (as they relate to any course data and syllabus information)
- Review and discuss pedagogic challenges and supports

**How Do You Know You're Aligned?**

*The dreaded "A" word: Assessment.*
*Now that you've gone through the effort, how will you know you are aligned?*

**Identifying Basic Assessments**

There are a few simple, baseline assessments to validate the alignment effort, and the most easily accessible evidence of alignment can be found in the documentation used by and shared among the faculty engaging in Curriculum Alignment.

A document analysis of course syllabi and course assessments (such as exams, homework assignments or other evaluated assignments) can provide insights into changes and improvements made because of the alignment effort. Collecting these sorts of documents when you start the effort, while you are working toward alignment and once you believe you have reached alignment will ensure you have what is needed for this assessment. Simply stated, you can determine what was the case before the effort and what is the case now or after the effort is completed. Using information available in the course syllabus, you can determine if anything changed from when you first collected syllabi to now. Items to pay attention to and compare include the following: course prerequisite requirements, topics covered, time spent on certain topics, etc. Each aspect of the course matrix (Appendix B) can also be evaluated for alignment. This includes course credit hours, course prerequisites, required textbook or course materials.

Course assessments can also be reviewed for or submitted as evidence of impact. Have there been any changes with respect to how or on what these evaluations focus? Has there been any impact of performance either at an item analysis level or with respect to the assessment in total? Is a common exam being used or are common questions embedded within exams offered in all sections of the course?

You can additionally take advantage of insights gained from the participants of alignment to help identify the important variables to track over time. The faculty members participating in the alignment efforts can self-report on their experiences, their activities and their perceptions. An ideal way to collect this sort of information is to use a survey or focus group. Appendix F provides a starting point of inquiry for this sort of qualitative data.

*What institutional data exist that can be used to establish a baseline of information and that can be repeated or replicated to show the impact of alignment?*

Revisit existing course data, in particular any two-course sequence identified at the onset of the effort or through vertical alignment. Course data that are initially gathered can be replicated on a regular basis and can provide some evidence of impact.

Below is an example of several types of assessments.

**Evidence of Effectiveness**

**Course Sequence Data**
One measure of alignment effectiveness is to look at achievement gaps among FTIC and transfer student population. Using the course sequence data referenced earlier in this handbook, we examined grades earned in courses being horizontally and vertically aligned. We found student grade improvements in both the aligned courses as well as in more advanced courses that are dependent on the content of those aligned courses (Dorman & Oonge, 2023). One study examined 53 course sequences (e.g., Algebra to Trigonometry) completed between 2017 and 2020 and found that 36% (n=19) of those sequences reduced the student success gap in the advanced course between FTIC and transfer students. Transfer students also improved their course success rates in 47% (n=25) of the sequences tracked. These results show that curriculum alignment contributes to transfer student success by way of course content and objectives being aligned. Regardless of where the student attempts the prerequisite course, students are ensured access to content that best prepares them for success in the more advanced courses.

**Survey/ Focus Groups**
Separately, survey data and faculty focus group data suggest that the inter-institutional collaborations in which faculty engage are effective (Dorman & Oonge, 2023). These inquiries found that:

1. Faculty members who made these connections reduce implied or imposed barriers to sharing course content,
2. Faculty members who engage in these collaborations advantage from the connections made, and
3. These faculty connections led to supplemental and complementary efforts supporting transfer student success (e.g., successful grant proposals, shared and assessed exam materials).

**Document Analysis**
Finally, document analysis of curriculum alignment artifacts (e.g., topics/ objectives worksheets, syllabi, course outlines, course catalog information) revealed that as of 2022, the STEM courses being discussed for alignment (35) had agreed upon topics and subtopics; however, not all courses had clearly articulated learning objectives, which speaks to the ongoing need for alignment discussions (Oonge & Dorman, 2022).

**A Discussion of Pedagogy**

One area that impacts the Curriculum Alignment discussions involves the pedagogic implications and influences on student success.

As you work through reviewing the information and data and discussing appropriate course objectives and topics, you will very likely identify additional topics of interest or questions to explore that relate to or show evidence of the impact and influence of the curriculum alignment effort on pedagogy and student success. It is worth further exploration of these topics where they directly contribute to the alignment effort. These sorts of questions include the following:

- Who are the types of students taking the course and why are they taking the course? Who is our audience?
- We determined what needs to be taught, now *how* are the course topics being taught or delivered?
- Where do instructional challenges or barriers to successful alignment remain?
    - Over which of these do faculty have control?
    - Which relate to the student's transition between institutions?
- What are the resources and tools available to students to help them be successful in these courses?
- How are faculty assessing the learning objectives (both formative and summative assessments)?
- What differences exist in course modality (ex: online, face-to-face, etc.) and how might this impact student success?
- What differences exist with respect to lecture, lab, discussion, and/or recitation requirements?

FACILITATION NOTES

*Academic success data are often very difficult to attribute to a single intervention as there are multiple variables that impact a student's ability to be successful.*

*Identifying succinct data that are not impacted by external and uncontrolled variables may be difficult as you assess the impact of your alignment effort. Recalling Figure 1, as best as possible, control for or be able to explain those factors outside of your control that may also be impacting student success.*

*Note that the results of any assessment of the effort can be used to support or refute existing alignment efforts.*

## VI - ACTION PLANS AND NEXT STEPS

**Action Plans and Next Steps**
*Agenda Items:*

- Identify actionable items and who is responsible for acting on and reporting back on them (think SMART goals)
- Identify any missing participants and/or those who should be involved in any action
- Determine date for report out on any action items

**Action Items**

The whole purpose of this section is to ensure that if you have identified steps to take that ensure an aligned curriculum, then you also need to understand how and that it will be done. The action item identifies what action needs to be taken, by whom, and in what timeframe[3], specifically asking:

*What needs to happen?*
*How will it happen?*
*By when will it happen?*
*How will you know that it has happened?*

Consider the above questions against these action items:

**ACTION**: If published learning objectives need to be aligned (or adjusted), initiate changes with the faculty.

**ACTION**: If titles, hours, descriptions, or prerequisites should be changed, provide documentation of agreed-upon curricular changes to the faculty.

**ACTION**: If the title, hours, description, or prerequisites need to change, adjust the course by submitting these changes to the appropriate curriculum committees.

**ACTION**: If the textbook, course objectives or topics need to change, adjust the syllabus.

**ACTION**: If tools or materials used in the course need to change, adjust classroom requirements and activities.

**ACTION**: If evaluation materials need to be aligned, develop and distribute aligned assessments (including homework, quizzes, assignments, exams, etc.).

[3] Recall S.M.A.R.T. Goals. Various sources abound, here are a couple: https://www.projectsmart.co.uk/brief-history-of-smart-goals.php ; https://www.mindtools.com/pages/article/smart-goals.htm.

**ACTION**: If additional data need to be collected, determine who has access to the data and how it can be appropriately shared.

**ACTION**: If Dr. Smith agreed to provide data at the next meeting, add them to the next meeting's agenda to present those data.

Accountability is key in the action-oriented phases of alignment work, so it is best to identify the actual person (or people) who will be responsible for any action items or steps that need to be taken. This may include calling out individuals (share the responsibility here!) if there are not volunteers. By clearly identifying what actions need to take place, the faculty members engaging in Curriculum Alignment can articulate changes or improvements to the program faculty and stakeholders, working with them as needed to enact the recommended changes and report back on the progress or impact of any changes. As such, the faculty involved with Curriculum Alignment will be able to take both *responsibility* and *credit* for their efforts.

# VII - CONTINUOUS REVIEW AND OTHER OPPORTUNITIES

**Continuous Review and Other Opportunities**
This may be a meeting or an opportunity to collectively share updates and information through a seminar or conference.
*Agenda Items:*

- Report-out on the status of actionable items
- Share any updates or changes to curriculum that may have occurred
- Identify and share challenges/ barriers and opportunities/ successes with alignment

**Continuous Process Improvement**

"Improve constantly and forever"[4] how your curricula are aligned. Assuming you have achieved alignment of your curriculum – which assumes your learning objectives, topics, depth of delivery and assessments are all in sync – you should check in from time-to-time to ensure continued alignment, share ongoing assessments and communicate any updates or changes. When you check-in, consider the following:

- Share the status of any on-going actionable items
- Review or update course objectives and topics and/or syllabi
- Review results of assessments across aligned courses, including sharing any course success data
- Identify and acknowledge any challenges or barriers to the success of your efforts
- Identify and acknowledge any of your successes and other opportunities that arise as a result of your efforts

**Share status of any actionable items**

For any action items, make sure you follow up with your participants to let them know the status of your items, even if you have not made any progress. If syllabi or any aspect of the course has been modified as a result of alignment efforts, share what was done and any updated documentation.

**Review or update course objectives, topics, syllabi**

Additional and ongoing changes may be needed because of changes to state, local or institutional mandates, changes to requisite or target course needs, or other changes that may have taken place that impact the learning objectives and/or topics of the aligned courses.

**Review results of assessments**

Continue to share the data you have that assesses, shows the impact of or shows the need for curriculum alignment.

[4] (Deming, 1986, p. 23) While it may seem out of place in an academic handbook, this is one of Deming's 14 Points for Management that even he states "apply anywhere" as we should strive to improve what and how we teach in an attempt to improve student success.

**Identify and acknowledge challenges and barriers**

You, your faculty, your student support personnel, your administration and your stakeholders have invested a great amount of time into the work of aligning your curriculum. As such and to ensure continued support for your efforts, you need to explicitly understand any limitations to your work. What are the barriers to success and what is needed to overcome (or minimize) those barriers? If you do not explicitly call out what is needed or what may be inhibiting success, you will never be able to address it.

**Identify and acknowledge successes and opportunities**

More importantly, you should celebrate and promote any successes – large or small – that results from the collaboration and engagement of the faculty members who undertake Curriculum Alignment. Consider also how the students, advisors/coaches, stakeholders and others are impacted by the effort. From our experience, many and multiple success are had by the faculty who participate in alignment conversations. Faculty will gain additional professional contacts and context and will have expanded access to course resources and instructional practices. Additional opportunities will also be presented. Simply having faculty members collaborate at this level of engagement with their curriculum and with fellow discipline experts for student success contributes to the scholarship of teaching and learning and provides a rich basis for internal, external and publishable research.

**Why Should Anything Change?**

If adjustments to curriculum are needed, what incentives do faculty members have for adopting the changes recommended through the Curriculum Alignment process? To answer this is to revisit the purpose of alignment, which is to ensure that the competencies gained by students taking these courses are sufficient for successful progression to a requisite or next level course so the ultimate goal of an academic credential can be attained. Remember always that we undertake this effort because we are invested in student success.

By engaging in the curriculum alignment process, faculty members have the opportunity to expand their pedagogic expertise, develop an enhanced understanding of curriculum, participate in a network of discipline professionals and provide a direct contribution to our students' successes.

# APPENDICES

**Appendix A: Facilitation and Administration**

Identify who will facilitate and have administrative oversight of the Curriculum Alignment initiative. The facilitator plays a most important role. Ideally the facilitator is someone who is not connected to the discipline, so that he or she can ask both broad, big-picture questions and the challenging questions with the only investment being student success. The facilitator is the person responsible for guiding the conversation, preparing for the alignment meetings and discussions, and following up on action items.

Responsibilities of the facilitator and the unit that supports that individual include:

1. Organize meetings
    a. Set agenda
    b. Facilitate discussions
    c. Identify items for follow-up
2. Secure (or provide) administrative assistance
3. Develop and implement communication plan
    a. Determine what is communicated, how often, and to whom
    b. Share results
    c. Manage and maintain website and/or promotional tools
    d. Manage and maintain resource to store/share information
4. Provide reporting
    a. Summary of action items and results
    b. Inventory of successes, opportunities, challenges, barriers
5. Provide accountability (to position and effort) to ensure:
    a. Action items are executed
    b. Timeline is followed
    c. Goals are met (consider the S.M.A.R.T.[5] approach)
6. Organize annual, coordinated meeting (e.g., multi-/cross-discipline conference)
    a. Establish and share expectation of continuous review
    b. Review actions
    c. Share updates
    d. Coordinate report-out
    e. Set high level and annual goals
7. Provide a budget to support the initiative

[5] Doran, 1981

## Appendix B: Course Matrix

### Biology Course Information

| Course | Details | CF | DSC | EFSC | LSSC | SSC | VC | UCF |
|---|---|---|---|---|---|---|---|---|
| BSC X010 | Course | *BSC 2010 3(3,0)* | *BSC 1010C 4(3,1)* | *BSCC 1010 4(3,2)* | *BSC 1010C 4(3,2)* | *BSC 2010C 4(3,3)* | *BSC 1010C 4(3,3)* | *BSC2010C 4(3,2)* |
| | Title | *Integraed Principles of Biology I* | *General Biology I (For Science Majors) and Lab* | *General Biology 1* | *General Biology I w/Lab* | *General Biology I* | *General Biology I* | *Biology I* |
| | PR/CR | CR: BSC2010L | none | PR: Appropriate test score in reading or placement. | PR: Dev writing and reading courses per placement test | PR/CR: MAT1033 or MAT1100 or higher math; ENC1101 eligible or dev or ENC1101 w/C | PR: Satisfactory completion of mandated courses in reading, math, English, and EAP | PR: HS Bio or C.I. |
| | Textbook | Biology, 8th Ed, Campbell & Reece<br>Lab Manual via CF publication<br>Openstax "Biology" 2nd Edition | Campbell Biology, 11th Ed, Reece et al<br>Laboratory Manual: Exploring Biology in the lab, Pendarvis & Crawley | Campbell's Biology, 12th ed, Reece, et al<br>BSCC1010 General Biology Lab Manual, 3rd Ed, Hayden-McNeil Pub. | Campbell Biology, 10th Ed, Reece, et al<br>Lab Manual via Blackboard<br>Openstax Biology 2nd Edition | CAMPBELL BIOLOGY, Custom Edition for Seminole State College of Florida, 2020. Author: Urry et. al., Publisher: Pearson.<br>Required Lab Manual<br><br>BSC 2010C Laboratory Manual, Department of Biological Sciences, | Campbell's Biology, Custom Edition for Valencia College, 4th edition,<br><br>Volume 1 with MasteringBiology. (2021) Taken from Campbell's Biology, 12th Pearson Learning Solutions. (Includes | Univirtual Biology I |
| | Note | Separate Lab: BSC2010L 1(0,1)<br>CR: BSC2010 | | | | | | |

**Appendix C: Florida Statewide Course Detail**

https://flscns.fldoe.org/TaxonomyList.aspx > Find A Course > Find a Statewide Course > https://flscns.fldoe.org/PbCourseDetails.aspx

*Example: Calculus I – MAC X311*

Taxonomy List / Course Detail

Institutions | State Course Detail

Statewide Course Detail — Browse Statewide Courses: GO

| | |
|---|---|
| Discipline | 044-MATHEMATICS |
| Discipline Definition | NONE |
| Prefix | MAC-MATHEMATICS - CALCULUS AND PRECALCULUS |
| Prefix Definition | COURSES FOCUSED ON MATHEMATICS IN A CALCULUS AND PRECALCULUS TRACK. |
| Century Title | 300-399-CALCULUS WITH ANALYTIC GEOMETRY |
| Decade Title | 310-319-CALCULUS WITH ANALYTIC GEOMETRY |
| StateWide Course | MAC 311-CALCULUS I (GE CORE) |
| Status | ACTIVE |
| Transfer | GUARANTEED TRANSFER TO INSTITUTION OFFERING SAME COURSE. |
| Course Intent | LOWER |
| Prerequisites | A COURSE FROM MAC _100 - _109 AND MAC _110 - 119, |
| Corequisites | NONE |
| Profile Description | 1. REVIEW OF FUNCTIONS 2. LIMITS AND CONTINUITY 3. THE DERIVATIVE 4. DIFFERENTIATON OF ALGEBRAIC FUNCTIONS 5. DIFFERENTIATON OF TRANSCENDENTAL FUNCTIONS 6. MEAN-VALUE THEOREM AND INTERMEDIATE VALUE THEOREM 7. EXTREMA AND GRAPH SKETCHING 8. AREA AND THE DEFINITE INTEGRAL 9. ANTIDIFFERENTIATION 10. FUNDAMENTAL THEOREM 11. INVERSE FUNCTIONS 12. ARC LENGTH 13. TECHNIQUES OF INTEGRATION 14. PARAMETRIC EQUATIONS AND POLAR COORDINATES 15. TAYLOR'S FORMULA, INFINITE SEQUENCES AND SERIES 16. VECTORS IN THE PLANE AND 3-SPACE 17. TOPICS FROM PLANE AND SOLID ANALYTIC GEOMETRY 18. DIRECTIONAL DERIVATIVES AND CURVATURE 19. DIFFERENTIAL CALCULUS OF FUNCTIONS OF SEVERAL VARIABLES 20. MULTIPLE INTEGRATION CREDITS: 4-5 SEMESTER HOURS THE ABOVE TOPICS APPLY TO THE ENTIRE CALCULUS WITH ANALYTIC GEOMETRY SEQUENCE. THE ORDER OF TOPICS MAY VARY IN THE TOTAL CALCULUS WITH ANALYTIC GEOMETRY SEQUENCE. THEREFORE, TRANSFERABILITY IS GUARANTEED ONLY IF THE ENTIRE SEQUENCE HAS BEEN COMPLETED |

**Appendix D: Course Sequence Data**

**Example: Intro to Biology (prerequisite) to Genetics (target)**

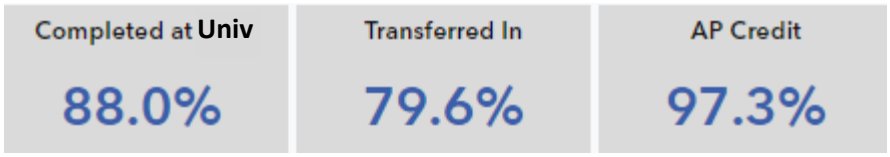
What follows are results of the two-course sequence data we collected between various transfer college partners (transfer institutions) and the university. These data are used to answer some initial questions about student success. As you examine these results, keep in mind the following:

- "Success" is defined by course grades of A, B or C.
- The prerequisite course, Intro to Biology, is completed at any institution or by a successful placement score on the College Board's Advanced Placement (AP) test.
- The data for the target course, Genetics, is only reported based on attempts at the university. This course is not referred to as "completed" because the course attempt may not have been successful.
- Results are provided as an aggregate of an academic year of data.

*Of the students who completed Intro to Biology (overall or at institution "X"), how did they do in Genetics?*

The data in Graphic 1 show the overall summary of the percentage students who were successful (ABC grades) in Genetics where the prerequisite, Intro to Biology, was completed at the university (88.0%), was completed at a transfer institution (79.6%) or was completed with an AP test (97.3%).

**Graphic 1: Overall Target Course Success Rates by Pre-Requisite Coues Attempt Source**

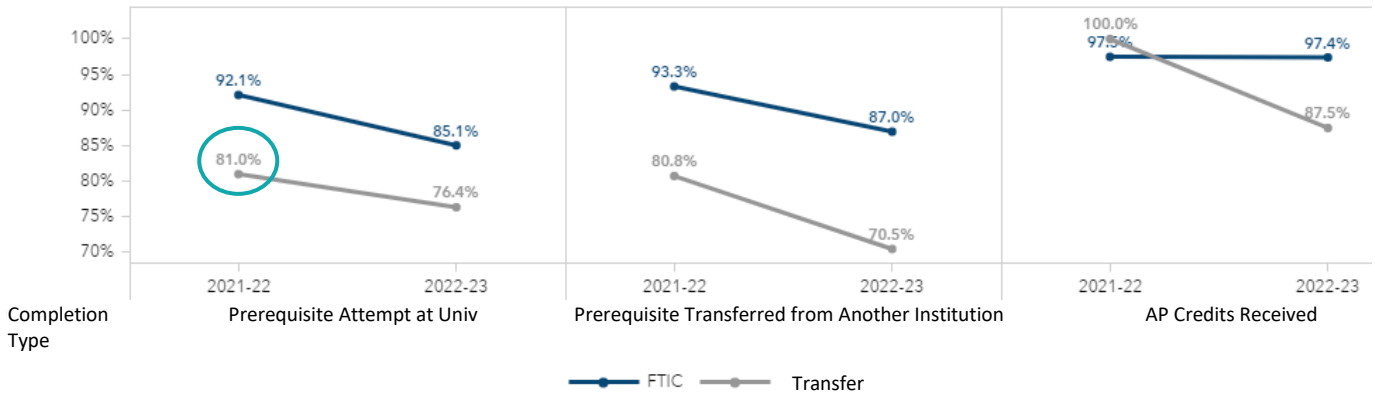



*How does success in Genetics look based on both where Intro to Biology was competed and the type of student who completed the courses (e.g., FTIC at university or Transfer from state college partner institution)?*

This is included because we know that students swirl, so by having this information we can evaluate the results based both on *where* the prerequisite was completed and *who* completed the prerequisite.

The data in Graphic 2 shows the success rates in the target course, Genetics, based on whether the prerequisite (Intro to Biology) was completed at the university where the target course if offered (first chart), at a transfer institution (second chart) or via AP credit (third chart). In addition, you see that the student type (FTIC or Transfer) is represented by two separate lines in each chart.

**Graphic 2: Target Course Success Rates by Pre-Requisite Attempt Source by Academic Year**

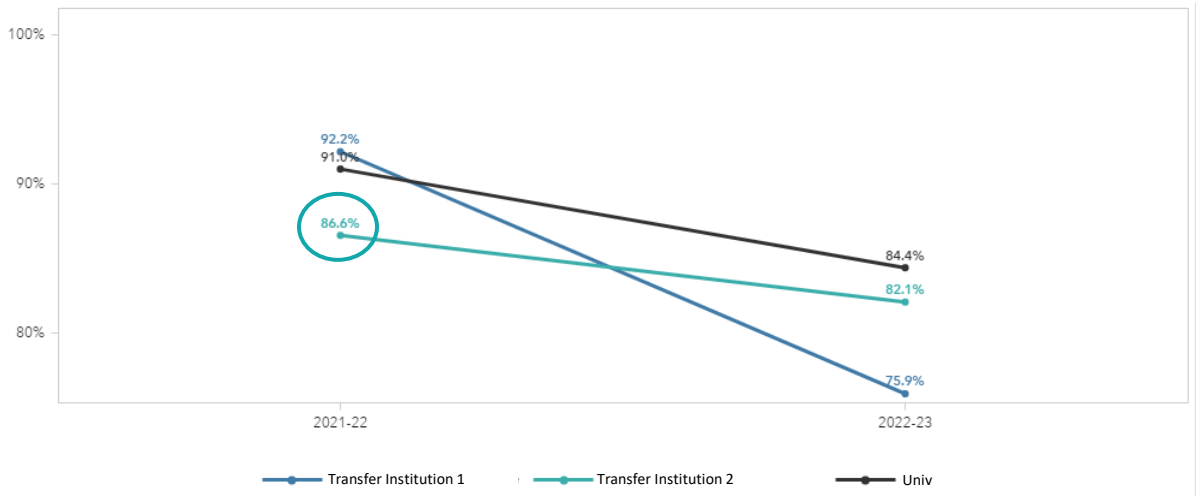


The circled data in Graphic 2 is described as follows:
In academic year 2021-22, 81.0% of transfer students who completed Intro to Biology at the university were successful in Genetics.

*How do individual partner college attempts in Intro to Biology compare to students who attempted Intro to Biology at the university?*

The data compiled by the university includes an analysis of the prerequisite course attempt at each partner institution where it was completed. Each line in Graphic 3 represents student success in Genetics based on their completion of the prerequisite, Intro to Biology, at a specific institution (i.e., Transfer Institution 1, Transfer Institution 2 and University).

**Graphic 3: Target Course Success Rates by Institution of Pre-Requisite Course Attempt and Academic Year**

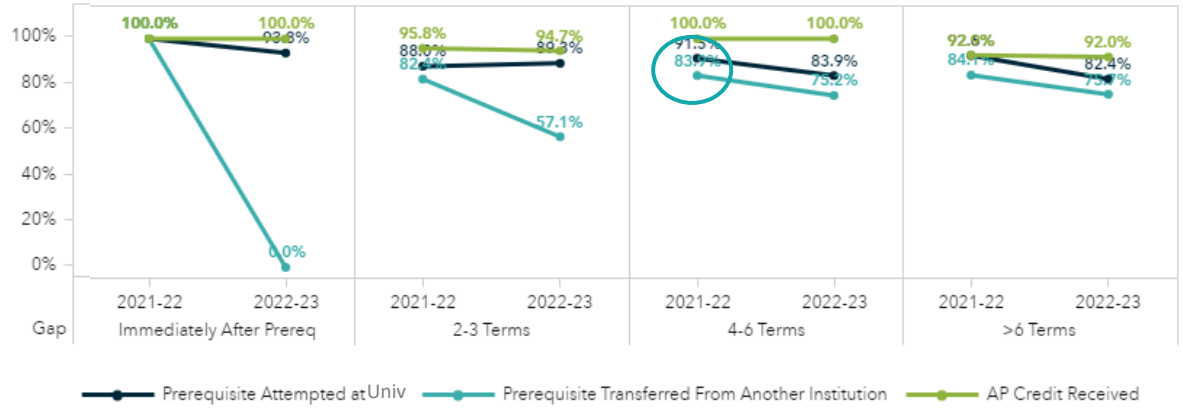



The circled data in Graphic 3 is described as follows:
In academic year 2021-22, 86.6% of students who completed Intro to Biology at Transfer Institution 2 were successful in Genetics.

*How does the gap in time between completion of Intro to Biology and Genetics affect student grades in Genetics?*

Gap terms represent the number of semesters between completion of Intro to Biology and the attempt at Genetics, regardless of where the Intro to Biology course was taken. In this example, there are students who attempted Genetics immediately after their reported completion Intro to Biology. For example, Intro to Biology was completed in the fall semester of 2021 and Genetics was attempted in the spring semester of 2022. For successive terms, “2-3 Terms” is interpreted to mean that Intro to Biology was completed two- to three- terms prior to Genetics. For example, Intro to Biology was completed in the fall semester of 2021 and Genetics was attempted in the summer or fall semester of 2022.

**Graph 4: Success Rates of Target Course Based on Number of Gap Terms Between Pre-Requisite and Target Course**

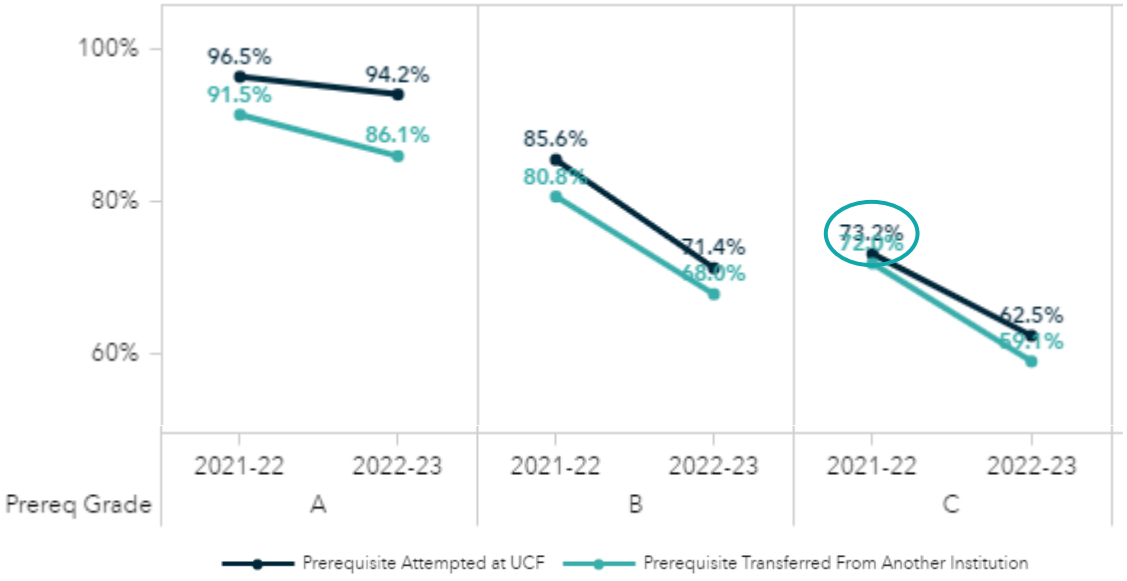



The circled data in Graph 4 is described as follows:
In academic year 2021-22, 83.9% of students who completed Intro to Biology at another institution *and* did not enroll into Genetics for four to six semesters after completing Intro to Biology were successful in Genetics.

*What does the prerequisite grade in Intro to Biology tell me about a student's ability to be successful in Genetics?*

Graphic 5 shows an example of overall success in Genetics based on specific grades earned in Intro to Biology taken at either the university or a transfer institution.

**Graphic 5: Success Rates of Target Course Based on Pre-Requisite Course Grade and Academic Year**




The circled data in Graphic 5 is described as follows:
In academic year 2021-22, 73.2% of students who completed Intro to Biology at the university and earned a "C" in Intro to Biology were successful in Genetics.

## Appendix E: Learning Objectives and Topics

Below is an example of a Learning Objectives and Topics worksheet for physics with calculus (PHY2048) that includes the course learning objectives (here referred to as "learning outcomes"), a list of the topics and subtopics that are covered to meet those learning objectives and additional codes that identify "Type of Coverage" and "Relevance". For relevance, PHY2048 is examined for vertical alignment to an engineering statics (EGN3310) and an engineering dynamics (EGN3321) course.

**Last Reviewed/Updated: 8/28/20**

**PHY 1/2048 Physics with Calculus I**

*Does not reflect how long an instructor should spend on each topic or the depth of coverage of each topic. The topics are simply a reflection of things that should be covered during the length of the course.*

| Topics | Sub Topics | Type: M=Mandatory O=Optional V=Overview R=Review | Relevance of Physics topic to student learning in identified course L = Low; M = Medium; H = High | | Learning Outcomes (VC) | Lab techniques for entire course |
|---|---|---|---|---|---|---|
| | | | EGN 3310 | EGN 3321 | | |
| MEASUREMENT AND VECTORS | Standard units (SI) - basic and derived units. | M | H | H | 1. Students will be able to understand and apply the definitions and principles of classical physics to describe different types of motion, to solve conceptual and numerical problems and to analyze related experimental data.<br><br>2. Students will be able to understand and apply Newton's Laws of motion to conceptual and numerical problems of classical mechanics, and to predict related experimental results and outcomes.<br><br>3. Students will be able to understand and apply concepts of work, energy, principle of conservation of mechanical energy and work-energy theorems to conceptual and numerical problems of classical mechanics and in laboratory settings.<br><br>4. Students will be able to understand and apply concepts of linear and angular momenta and the Laws of Conservation of the Linear and the Angular Momentum to appropriate problems of classical mechanics and in laboratory settings.<br><br>5. Students will be able to understand and apply concepts of torque, rotational inertia, center of mass and related principles | Skills that fulfill the objectives are more important than specific content or type of labs conducted<br>See: Holmes - http://cperl.lassp.cornell.edu/content/learning-objectives-intro-physics-lab-courses-cornell-university |
| | Vector operations - analytical and graphical solutions | M | H | H | | |
| | Distinguish between scalar and vector | M | H | H | | |
| | Curves, tangents to curves, vector field | M | H | H | | |
| | Dot and cross product | M | H | H | | |
| MOTION | Kinematics - instantaneous and average velocity, acceleration, speed. | M | L | H | | |
| | Types of motion-Circular, harmonic, linear, projectile, 2-and-3 dimensional, rotational. | M | L | H | | |
| | Graphical representation of motion | M | L | H | | |
| | Simple harmonic motion | M | L | H | | |
| DYNAMICS | Dynamics-Newton's Laws (F=ma) | M | H | H | | |
| | Linear-forces, momentum, center of mass | M | H | H | | |
| | Rotation-torque, moment of inertia, angular momentum | M | H | H | | |
| | Static and dynamic fluids | M | H | M | | |
| | Equilibrium and Elasticity | M | H | H | | |
| | Newton's Law of Universal Gravitation-gravitional acceleration (orbital motion). | M | M | H | | |
| ENERGY AND CONSERVATION LAWS | Work energy theorem | M | L | H | | |
| | Work and power | M | L | H | | |
| | Collison and interaction | M | L | H | | |

Focusing in on a single topic – Motion – we identify the usefulness of this worksheet as follows:

- The Motion topic directly contributes to the second learning outcome.
    - Note: in this worksheet, an additional field could be added that explicitly identifies to which learning objective each topic or subtopic relates.
- Within this topic, the subtopic on Kinematics is a mandatory subject to cover in the course.
- With respect to vertical alignment, this Kinematics topic is one that has little relevance to EGN3310 but is very important to EGN3321.

In this example the topics identified are those that should be covered during the length of the course, and to ensure this interpretation, also note the header information, which states that this worksheet "does not reflect how long an instructor should spend on each topic or the depth of coverage of each topic. The topics are simply a reflection of things that should be covered during the length of the course." While this example does not include topic-by-topic "Depth of Coverage" information, you can see how that information could easily be added.

This example does, however, include an additional category that references an associated laboratory experience. As you adapt this worksheet to the course or courses you are discussing in your alignment effort, consider what additional information is most useful and important to collect and record.

**Appendix F: Survey of Faculty Participants and Focus Group Prompts**

**Survey**

A survey can be tailored to faculty participants or sent to anyone involved in the curriculum alignment effort. To ensure you know *who* is responding (without collecting names), it is important to collect basic demographic information that includes the following: campus, institution, role within the institution and discipline. This first example (below) assesses actual participation in the effort and asks about any influence alignment has had on their instruction, individual course benefits, how the effort is communicated and any challenges.

Are you an active participant in curriculum alignment meetings?
- ☐ Yes
- ☐ No

In what ways has curriculum alignment influenced your practice as an instructor? Select all that apply.
- ☐ Not Applicable
- ☐ Revised course pre-requisite(s)
- ☐ Changed my pedagogical practice/approach
- ☐ Changed the course textbook
- ☐ Changed the syllabus
- ☐ Changed how students ae advised
- ☐ Changed course assessment (i.e. assignments, examinations, and other evaluative course material)
- ☐ Reaffirmed your teaching practices
- ☐ Other, please specify. [response provided in text]

Which of the following activities did you find beneficial during Curriculum Alignment meetings? Select all that apply.
- ☐ Aligning learning outcomes
- ☐ Aligning course topics
- ☐ Aligning subtopics
- ☐ Aligning course credit hours
- ☐ Aligning course pre-requisites
- ☐ Aligning textbooks or course materials
- ☐ Engaging in discussions about pedagogical resources and tools
- ☐ Addressing advising issues or concerns (e.g., Financial Aid, excess hours, etc.)
- ☐ Interacting with colleagues
- ☐ Other, please specify. [response provided in text]

Are you / is your unit sharing information about curriculum alignment with all instructors of record (e.g., adjuncts, instructors/lecturers, tenure-earning and tenured faculty, graduate student teachers)?
- ☐ Yes [response prompts additional question]
- ☐ No
- ☐ Unsure

    If yes, how is the information you learn at the curriculum alignment meetings being shared with instructors of record? Select all that apply.
    - ☐ Regular updates shared at faculty meetings
    - ☐ Emails/Newsletters/Other written materials
    - ☐ Other, please specify. [response provided in text]

[open-ended response] What challenges did you encounter while participating in curriculum alignment discussions? Were these challenges resolved? How did you or the alignment team resolve these challenges?

A survey can also be used to help guide discussions, prompt what information is shared at future meetings, and collect feedback on your facilitation of the efforts. The below examples involve open-ended responses; however, where you want to direct or collect information in a specific area, you can provide a list of responses from which the participant can select.

[open-ended response] What additional data do you believe needs to be collected to document the influence of this effort on transfer student success?

[open-ended response] What do you think should be the next steps for curriculum alignment efforts in your subject area?

[open-ended response] Based on your engagement in this effort, what should the curriculum alignment coordinating team do to improve alignment work?

**Focus Group**

A facilitated focus groups provide a great opportunity for more in-depth insights about the impact of your alignment effort or to explore questions you may have about survey responses or your alignment efforts. (You can use the survey to help identify participants, through their self-identification.) Below represents some of the prompts that were discussed at a faculty-attended focus group:

We know that you provided response in a recent survey, but we would like to again ask: How has the curriculum alignment initiative influenced your instructional practices?

Follow-up questions:
What changes have you made to how you teach your course?

How has or has curriculum alignment reinforced what you do?

What motivates you to continue to engage in CA discussions?

In your own perspective, what challenges have you encountered during curriculum alignment discussions?

Follow-up questions:
Please describe your experience during curriculum alignment discussions.

How have participants or the facilitators negotiated any challenges during curriculum alignment discussions?

If any challenges were resolved, how were they addressed and resolved?

What do you think is needed to overcome the perceived challenges in curriculum alignment?

Have your perceptions of a student's ability to be successful in your course or program changed since you've been involved in curriculum alignment? If so what has changed?

Follow-up questions:
How has your engagement in curriculum alignment efforts positively impacting your students' ability to successfully progress?

How do you think curriculum alignment aids students?

# GLOSSARY

**Course Learning Objectives** (also sometimes referred to as course learning "outcomes") are learning goals or statements about the course that "clearly state the expected knowledge, skills, attitudes, competencies, and habits of mind that students are expected to acquire from an educational experience" (NILOA, 2011).

**Course Matrix** is a tool used in Curriculum Alignment. It is a comparative grid that provides basic information about similar courses across multiple institutions. At a basic level, the information includes course prefix, course number, credit hours (lecture and lab), title, pre- and/or co-requisite requirements, required textbooks and associate lab (if applicable).

**Course Sequences** are a combination of two courses consisting of a prerequisite and target course where success in the target course is dependent in some way on the content taught in the prerequisite.

**Course Assessments** include any activity that assesses the students' knowledge or understanding of the course content. This includes (but is not limited to) pre-/post-tests, homework, quizzes, and exams.

**Curriculum** refers to the totality of learning experiences including that which is written, tested and taught. In the Curriculum Alignment effort, the focus is on course curriculum that encompasses learning objectives and purposes, content or learning experiences, organization of these experiences in scope and depth (Tyler, 1949), and assessment or evaluation (Shubert, 1986; Tyler, 1949).

**Curriculum Alignment** is what results when course learning objectives, purpose, instructional activities, supporting materials and assessments are aligned regardless of who is teaching the course or where the course is taught.

**Curriculum Mapping** is a process of mapping out the courses of an academic program to understand how each course provides instruction that is introductory, provides emphasis, serves as reinforcement or delivers advanced content. These courses build upon one another to meet the learning objectives of the program.

**First Time in College (FTIC) Students** are students with a high school diploma (or equivalent) who are enrolling for the first term at any college or university; these include students who may have earned college credit via dual enrollment or testing.

**Gateway Courses** are high enrollment courses that have historically resulted in high rates of D, F, Withdrawal (W) or Incomplete (I) grades (Gardner Institute, 2019). These are often the foundation level courses for an academic major or degree, and these courses are most often courses taught at the lower level.

**Horizontal Alignment** ensures that there is alignment of learning objectives and experiences in a single course regardless of where the course if offered or by whom the course is taught.

**Inter-Institutional Alignment** ensures that all offerings of a course across two or more institutions are aligned.

**Internal Alignment** ensures that all sections or offerings of a course within a single institution are aligned.

**Lower-Level Courses** are courses that are often considered introductory or foundational and are offered as a part of a two- or four-year degree. In many cases they have a lower course number (e.g., 1XXX or 2XX).

**Prerequisite Courses** are the courses that provide introductory, gateway or foundational content that will be built upon in later courses. While they are often identified as an explicit prerequisite course requirements per registration restrictions, they do not always have to be classified as such nor block enrollment into the target course if not completed first.

**Target Courses** are the courses that have some dependence on and build upon the content delivered in a prerequisite course. This may also be referred to as an “advanced”, “next-level” or “requisite” course.

**Transfer Students** are students who are admitted to a college or university after initially being admitted to and completing courses at a different and prior college or university.

**Upper-Level Courses** are most often courses offered as a part of a four-year degree that are considered major-specific or advanced. They contain more specialized content that builds on content of a previous course or courses. In many cases they have a higher course number (e.g., 3XX or 4XXX).

**Vertical Alignment** ensures that knowledge and skills gained in a prerequisite or foundational course appropriately prepare the student for advancement into a target course or more advanced course.

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