Academic Senate
Agenda for the Meeting of
April 4, 2017
UCB 202A
10:00 - 11:50 am Session

1. Call to Order and Roll Call

2. Approval of Minutes
   A. March 14, 2017 minutes

3. Open Forum

4. Reports
   A. Senate President – Khagendra Thapa
   B. Senate Vice President – Charles Bacon
   C. Senate Secretary – Melinda Isler

5. Committee Reports
   A. University Curriculum Committee – Dr. Fadayomi
   B. Senate Elections – Chuck Drake
   C. General Education – Cliff Franklund
   C. Student Government – Josh Olszewski

6. Old Business
   A. Interdisciplinary Collaboration Task Force Recommendations – Victor Piercey

7. New Business
   A. New Degree – AA in Integrative Studies – Dr. Fadayomi
   B. New Degree – Associate in Science (Natural Science) Program – Dr. Fadayomi
   C. New Degree – BS in Biochemistry – Dr. Fadayomi
   D. New Certificate – ISI Cybersecurity Certificates – Dr. Fadayomi

8. Announcements

   A. FSU President - David Eisler
   B. Provost – Paul Blake
   C. Senate President – Khagendra Thapa

9. Open Forum

Minutes
Ferris State University
Academic Senate Meeting
March 14, 2017- 10:00 a.m.

Members in Attendance: Alspach, Bacon, C., Bacon, M., Bajor, Balanda, Baran, Berghoef, Briggs, Bright, Conley, Cronk, Epps, Fadayami, Foulk, Fox, Gray, Hancock, Hanna, Ing, Isler, Lewis, Piercey, Pisani, Rumpf, Shimko, Stone, Thapa, Todd, VanLent, Wancour, Zyla
Members absent with cause: Brecken, Dinardo, Drake, Jenerou
Members absent: Maike, Marion, Mattis
Ex Officio and Guests: Adeyanju, Damari, Durst, Eisler, Franklund, Haik, Nicol, Johnson, Hawkins, Martin, Campbell, Wilber, Haneline Gillette, Stanislav

1.	President Thapa called the meeting to order at 10:00 a.m.
2.	**Approval of Minutes.** Senator Ing moved to approve the minutes. Senator Zyla seconded. The motion passed 93% to 7%,.
3.	**Open Forum.** Senator Piercey encouraged any faculty who have an interest in Mathematics Education to consider attending the Michigan Section meeting off the Mathematical Association on March 31-April 1. He also commented on the event Connections with Music speaker from Maryland.
4.	**Officer Reports/ President Report** President Thapa noted an alumnus of the surveying program has been the first ever elected as president of the national surveying society. President Thapa also recognized Marilyn Gillette, emeritus and first women president of the Academic Senate. She said it was nice to see how the organization has grown and continued to be an important entity on the Ferris campus. Vice-President Bacon noted that International Education chair Scott Cohen will be presenting later in the meeting. He also said that the task force on health promotions has been investigating the historical perspective on the committee as presented by Senator Berghoef and at the suggestion of Birkam Center Lindsay Barber will be reinstituting a health survey which will answer some questions about need. He also read a report from the Senate Elections chair. Secretary Isler had no report. President Eisler gave his report early because of conflicts in schedule. He noted that he was relieved that the bill to eliminate the Michigan income tax was defeated and noted that the Presidents Council, during their Lansing meeting, had gone over and lobbied the legislature. He also discussed the March SPARC meeting which will focus on student debt. In the rankings of most expensive universities our ranking has decreased from 5th but we it still remains a significant issue. Vice-President Bacon asked if the debt was normalized for type of student population. President Eisler said no, it was based on undergraduates only. He also encouraged faculty and staff to attend the Ambassador Neumann presentation that afternoon.
5.	**Committee Reports** UCC Chair Kemi Fadayomi reported on the 102 proposals the committee is working through. She noted the issue of certificates came up with the Automotive program, and the proposal was sent back because it did not have the minimum 6 credits. She also noted programs like the DCCL need an approval process and a college home. Associate Provost Johnson commented that they need an individualized Form A. Vice-President of Student Government Jared Law presented on recent activities. He talked about how they had conducted FLITE community conversations anad learned about the purpose of new furniture on 2nd floor (not soundproof and possible hours. They also commented on hours and plug accessibility.
6	**Interdisciplinary Task Force on Collaboration.**

	Senator Piercey presented the recommendations of the task force. He noted that in the fall, after speaking with the provost they were asked not to provide all of the logistical issues such as scheduling, load,e tc and leave that to Academic Affairs. Recommendations were as follows: 1. Academic Affairs set aside annual funds for internal grant program. 2. Host annual conference 3. Academic Affairs address logistical issues; sustaining funding models, load and SCH, Banner, student awareness and mechanism to house interdisciplinary programs. 4. Establish faculty directory (compensated), supported by committee 5. Add Academic Affairs Award. Senator Stone said while she supports the concept the devil is in the details- as the internal grant which may support release for one year may not be something the faculty are eligible. Senator Hanna said that this is an idea whose time has come and suggests the director not be beholden to a single college. Senator Wancour also expressed support but concern about sustainability. Vice-President Bacon said it would be hard to vote on the motion without knowing the details. Senator Piercey said the director would be viewed as at least a quarter release time, but depending on size of program may need to grow. Senator Fadayomi said this would help to provided distinction for Ferris. Senator Berghoef asked if this was only for courses. Vice-Provost Johnson said that in secondary education they do it through interdisciplinary unit planning. A vote will be taken at the April meeting.
7a	**New Concentration- Sports Communication Program** Chair Fadayomi moved to approve the new concentration. Senator Mary Bacon seconded. Motion passed 83% to 10% with 7% abstaining.
7ba	**Appointment of Senator to General Education Committee.** Senator Alspach noted that there had been no volunteers and encouraged those with an interest to contact Paula to be appointed for the remainder of this year.
8.	**International Education Committee Report.** Chair Scott Cohen came to report on actions of the committee. He noted he had been working on the committee for three years. They are partway through the process and would not be hosting a reception this year for all nominees. He named current nominees. The committee sent a letter of support to President Eisler relating to the January travel and have been working with the Director of International Education to change the student abroad policies and procedures. He also intends to review and update the committee website. Vice-President Bacon noted that the policy and procedures are separate. The procedures need to provide clarification and have correct dates. Chair Cohen noted that the dates have not been released because they have not completed their review. Senator Gray noted that it is true that one timeline is difficult to work for all trips. Senator Piercey asked who answers questions about the summer application forms. Chair Cohen said those questions would go to Dr. Prakasam.
9.	**Announcements/Presidents Report.** President Thapa said faculty credentials will be an upcoming topic. Provost Blake was absent.
10.	**Open Forum** General Education coordinator Cliff Franklund noted that they are scaling out the General Education and working on a policy to figure out how to deal with exceptions for seniors. They are also looking and structures for associates of arts degrees. They are also rewriting policies to reflect accurately the diversity requirements. Emeriti President Haneline noted that the DCCL had been approved outside of the normal college structure but there should be an effective way to solve the problem. Todd Stanislav from the Faculty Center encouraged all to attend the speaker events for Debbie Irving and thanked the Senate for being a co-sponsor. Senator Alspach reported that her RSO raised $400 in the Red-Out event. Senator Fadayomi said that the she felt a task force should be formed to respond to the information Cliff Franklund had presented in January about the results of advising and the NSSE data.
11.	**Recognition of the Volleyball and Football teams.**

	President Thapa recognized the achievements of both the volleyball team and the football team for their historic seasons. They were presented with a certificate and a photograph was taken.
12.	The meeting was adjourned at 11:30a.m.

Dear Academic Senators,

I am writing on behalf of the Senate Task Force on Academic Interdisciplinary Collaboration. Our final recommendations are attached, and as a member of the Academic Senate, I move that the Senate adopt these recommendations.

Thank you for your input and support in our work. I wanted to highlight the changes we made in response to the discussion at the March, 2017 meeting. As requested, we have included additional details that we felt appropriate to our recommendations and the role of a task force. In cases where we chose not to specify those details, it was because we believe those matters exceeded our role.

Most of the details that we are leaving to be determined have been placed in the hands of the faculty committee that we propose. The discussion that we had in the March Senate meeting indicated to us the importance of continued faculty voice and direction. Accordingly, we have reordered the recommendations so that the appointment of a Director of Interdisciplinary Collaboration along with a supporting committee is the first recommendation in our list. It is our vision that the director and this committee will replace the task force and continue the work of developing a supportive environment for interdisciplinary teaching and learning, but on a more permanent footing.

Some of the specific changes to the recommendations are as follows:

1. The Director of Interdisciplinary Collaboration and supporting committee:

    - Included some selection criteria for the director, specifically that they demonstrate in the application process that they will not favor one unit (department, college, etc.) over any other units.
    - Included a term for the director and terms for the committee members.
    - Specified the duties of the director and the responsibilities of the committee.
    - Among the director's duties, the director will be expected to inform the Senate of her progress at least once per year (at the retreat).
    - Specified the composition of the committee.
    - Specified that the director reports to the Provost.
    - Required an appointment process for the director that allows at least one opportunity for input from the university community.

2. The internal grant fund:

    - Required that the committee develop specific procedures for applications and criteria for awards.
    - Articulated the purpose of the internal grant fund, to be used to guide the committee in their decisions.
    - Required applicants to describe a sustainability plan in their proposals.

- In the elaboration that follows the recommendation in Section VI, we have provided examples of funding models to illustrate what this could look like.

3. Logistics:

    - We have placed the responsibility for ironing out logistical problems in the hands of the committee instead of Academic Affairs.
    - We have included a deadline for the initiation of revisions to logistical procedures, and required those revisions to follow ordinary processes and procedures for implementation (such as Senate approval following vetting by committee).
    - In the elaboration that follows the recommendation in Section VI, we have added a third option to sustain team-teaching in the long-term: the use of stipends.

4. The conference: no changes.

5. The academic affairs award: no changes.

As usual, if you have questions, please feel free to contact me. I look forward to discussion and a vote at the April Senate meeting.

Sincerely,

Victor Piercey,
on behalf of the Senate Task Force on Academic Interdisciplinary Collaboration.

Academic Senate Task Force on Academic Interdisciplinary Collaboration

Final Recommendations

April 2017

In September 2015, the Senate authorized a task force to investigate and prepare recommendations to improve opportunities for academic interdisciplinary collaboration at Ferris State University. The task force met several times throughout the 2015-2016 and 2016-2017 academic years and has approved the following recommendations. After briefly stating the recommendations, we share some of what the task force found in the literature, at other institutions, and at Ferris. This document concludes with a restatement of our recommendations along with further elaboration and justification, followed by a description of our process and references. We ask the Ferris State University Academic Senate to approve our recommendations and pass them along to the Provost and Vice President for Academic Affairs.

In a meeting with the task force on November 22, 2016, the Provost expressed support for our work and our conclusions as well as the belief that the foundations laid down in response to the recommendations be given room to evolve and grow. In that spirit, our formal recommendations do not specify details, although in some cases the elaboration will share potential ideas.

We, as a task force, believe that Ferris' mission and core values (one of which is collaboration) put us in a position to play a leading role in interdisciplinary post-secondary education in the state and possibly the nation. We also believe that interdisciplinary and collaborative teaching is critical in preparing students for the 21st century workplace. Finally, we expect that interdisciplinary learning opportunities will help Ferris stand out among potential students as we strive to compete in an environment of shrinking demographics in the state.

I. Executive Summary of Recommendations

The task force recommends to the Provost and Vice President for Academic Affairs that:

1. The Provost should appoint a Director of Interdisciplinary Collaboration from among the faculty. The director will serve a term of 3 years and will be compensated by Academic Affairs with appropriate reassign time. The director will appoint a supporting committee.

   The director's duties will include:

   - bringing interested faculty together to work through projects and identify connections,
   - leading faculty learning communities to facilitate the creation of interdisciplinary academic projects,
   - assessing the state and impact of academic interdisciplinary collaboration,
   - informing stakeholders of the progress of academic interdisciplinary collaboration, including at least one report to the Academic Senate per year at the senate retreat,
   - maintaining records of academic interdisciplinary collaboration projects, and
   - any other duties described in the other recommendations below.

The director will be selected by the Provost in a process that will include at least one opportunity for input by the university community. In the application, applicants should demonstrate that they will not show preference toward any individual units (colleges, departments, etc.). Organizationally, the director will report to the Provost.

Together with the director, the responsibilities of the supporting committee will be include:

- managing and reviewing logistical procedures that facilitate or obstruct academic interdisciplinary collaboration;
- as determined necessary by the committee, propose revisions through appropriate processes in order in order to improve the logistical support for academic interdisciplinary collaboration,
- reviewing and awarding grant funds as described in recommendation 2 below,
- planning the annual conference as described in recommendation 4 below, and
- any other duties described in the other recommendations below.

Logistical procedures should be reviewed at least once every three years.

The committee will include one representative from each of the colleges (not including the director) and will be chaired by the director. The director will only vote to break a tie. The Provost will appoint one representative from the Provost's office to serve as a non-voting member of the committee. Members of the committee will serve terms of 3 years, and the terms will be staggered. In order for terms to be staggered, initial terms for some members will be one year or two years.

2. Academic Affairs should set aside an annual amount of funding to be used as an internal grant program to support proposals specifically for collaborative, interdisciplinary academic projects that involve teaching and learning, fit the mission of the university, and do not overlap with existing internal grant opportunities.

   The committee described in recommendation one above will establish the procedures by which faculty can submit proposals for funding under this grant program along with criteria for selection. Those procedures should include a simple and observable method to insure that funded proposals represent collaboration between two or more different disciplines and to make sure that the funding is justified based on the required effort in the proposal. Grant proposals will be required to include a plan for sustaining the project after completion of the proposed funded work.

   The purpose of the internal grant is to provide seed money to support projects creating learning environments for students in which there are at least two disciplines involved and where the work of the disciplines is integrated. This purpose will be the principle that guides the committee in developing procedures and selecting awards.

3. The committee described in recommendation one should establish logistical procedures to support interdisciplinary teaching and learning, including but not limited to:

(a) a plan to sustain interdisciplinary teaching projects beyond initial funding from the internal grant program from recommendation 1;
(b) a mechanism to resolve competing faculty load and student credit hour calculations between different departments and between different colleges;
(c) an appropriate way to identify linked and team-taught courses in banner;
(d) a plan to advertise to students courses that result from or involve academic interdisciplinary collaboration; and
(e) a mechanism to house interdisciplinary programs.

These logistical procedures will be implemented through appropriate procedures, and should be initiated within the term of the first director.

4. Academic Affairs should sponsor an annual conference at Ferris State University dedicated to interdisciplinary teaching and learning.

5. Academic Affairs should sponsor an award to recognize academic interdisciplinary collaboration.

II. Definition

In the literature, there are many definitions of "academic interdisciplinary collaboration" and its offshoots (multidisciplinarity, crossdisciplinarity, collaboration, interdisciplinary thinking, etc.). Broadly speaking, interdisciplinarity is "a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession" (Klein & Newell, 1997, p. 393). When the concept is linked to education, interdisciplinarity is:

> a mode of curriculum design and instruction in which individual faculty or teams identify, evaluate, and integrate information, data, techniques, tools, perspectives, concepts, and or theories from two or more disciplines or bodies of knowledge to advance students' capacity to understand issues, address problems, appraise explanations, and create new approaches and solutions that extend beyond the scope of a single discipline or area of instruction. (Rhoten, Mansilla, Chun, & Klein, 2006, p. 3)

For the purposes of our work as a task force, we have tentatively adopted the following description of "interdisciplinarity":

> When two or more academic disciplines or professions combine their expertise to jointly address one or more areas of common concern, such as problems that are too complex or cannot be addressed by a single discipline or profession. Such interdisciplinary work encompasses curricular, instructional, scholarly, and creative work and service (such as with community partners). (adapted from Davies and Devlin, 2007):

Our focus is on curricular and instructional work, and to the extent that it involves students, scholarly and creative work.

Models that operationalize academic interdisciplinary collaboration in the classroom include team-teaching, linked classrooms, and team-designed courses.

III. Benefits

The benefits of academic interdisciplinary collaboration to students are myriad, and the following benefits are supported by the literature identified in the references:

- Opportunities for students to engage in complex, 21st century problems
- Improved student outcomes, especially concerning critical thinking, problem solving, appreciation of ethical considerations, and tolerance of ambiguity
- Improved student motivation and enthusiasm
- Students become more innovative thinkers
- Deeper learning (as opposed to rote learning)
- Early opportunities for students to participate in scholarly or creative work
- Improved student attitudes toward responsible citizenship and lifelong learning.

In addition, the literature listed in the references also provides evidence of the following benefits for faculty:

- A wider variety of design, teaching, and assessment methods
- Increased production of scholarly and creative works
- Increased campus collegiality
- A more self-conscious approach to teaching, learning, and assessment
- More accurate and authentic assessment
- An atmosphere of risk and experimentation that tends to generate student engagement and learning
- Deeper trust between students and instructors.

IV. Examples and Models

John Aldrich (2014) argues that, in higher education, modern interdisciplinary teaching takes three major forms. In the first form, one instructor teaches one course by bringing "together methods, perspectives, evidence, and texts from several disciplines to bear on a question or course topic" (p. 136). This may take the form of team-designed courses, where an interdisciplinary group of faculty contributes to the design and materials for a course intended to be taught be one faculty member (Bass, 2012). In the second form, multiple educators teach one course in sequential sections or multiple courses that are linked. The third and most integrated form of interdisciplinary teaching involves multiple instructors from multiple disciplines teaching one course as a team (also known as team-teaching).

Aldrich also contrasted different ways of promoting interdisciplinary teaching and coursework. The first is a "bottom up" (p. 144) method that is commonly employed across the country. This approach starts with faculty members that begin the process themselves. The example that is explored in some detail comes from the Women's Studies program at Amherst College (p. 144). The program evolved over several years into a department in which every course is interdisciplinary. The faculty were motivated by their experiences in the women's liberation movement, and led to a re-structuring of the traditionally separated departments in political science and women's studies into an integrated "Women's and Gender Studies" department that has control over hiring decisions and course offerings at both the undergraduate and graduate levels.

The second example of the development of interdisciplinarity was the "top down" approach used at Lafayette College to establish a "Policy Studies Program" following an external review of the Department of Economics (p. 146). Support for the program came from the administration, alumni, and

the board of trustees. Faculty support came from an interdepartmental committee and a faculty member hired specifically to implement the new program. There were several key components to the process that led to its success. First, every unit involved gave input during the development of the program, which may have been aided by the small size (less than 200 faculty) of the institution. Second, the faculty were presented the opportunity at a public meeting to comment during the process, which led to the disappearance of any opposition from the Faculty Senate. A third factor was the use of "existing courses and restraint in creating new courses that might prompt `turf wars' [which] permitted a relatively easy process and integrated the program fairly well within the existing curricular framework" (p. 147). Physical proximity of the involved faculty members was cited as an important factor as well.

The third example was described as the "top down and bottom up" approach (p. 147) used at the Kahn Liberal Arts Institute at Smith College. An endowment was established by an alumna to support "interdisciplinary teaching on contemporary issues" (p. 148). The college has a "Coordinating Committee" and "Organizing Fellows" that review individual proposals from faculty members that desire to "participate in a project shared with other faculty and students" (p. 148). One remarkable feature of the program is that students are heavily involved in the process, becoming "nearly equal participants" (p. 148). Course release is given to participating faculty.

There are many examples of successful initiatives across the country. Northern Illinois University offers "themed learning communities" (TLCs) to their first-year students. These learning communities function as an extended first-year seminar. They consist of more than one (ideally 3) course where the faculty work together to establish a common theme. Examples of themes from Fall 2013 include:

- Business and Society
- Calculus and Physics
- Competing Global Perspectives
- Conflict and Creativity: The Impact of War on Art
- Health Psychology
- Service in Society
- Making your Case for Law School
- Growing a Mindset of Success
- Teachers as Ambassadors for Social Change

A team from the NIU's Office of Student Engagement and Experiential Learning coordinates the TLC program. Faculty who wish to create a TLC must submit a proposal to the coordinating team. Requirements for approval include, among other details, a minimum number of specific, integrated assignments that cross course boundaries. Faculty who teach TLCs coordinate closely to plan an integrated curriculum and are provided with stipends and professional development. A handbook was produced to guide faculty through the process. In addition to helping faculty, the university course schedule and catalogue help students by indicating specifically which courses are connected as TLCs. For example, in Fall 2013, one section of the course "COMS 100" (Fundamentals of Oral Communication") in the schedule included the following note:

> This course is part of the Making your case for Law School themed learning community. To enroll in this class you must also be enrolled in UNIV 101 (section T104 class number 4699) and PHIL 231 (section T105 class number 7542). Freshmen ONLY.

Themed learning communities were introduced at NIU in the Fall of 2010, and grew from having 46 student participants in that initial term to 335 by Fall of 2013. NIU noted that in Fall 2013, students in the TLC had an average first semester GPA of 2.85 compared to an average GPA of 2.6 among a group of

similar students (based on ACT and HSGPA) who did not participate in TLCs. Similarly, 93% of first-year students who participated in a TLC were retained from Fall 2013 to Spring 2014 compared to 89% among the comparison group. Finally, MapWorks surveys indicated that students who participated in the TLC tended to have a lower risk level than those who did not participate.

Other institutions have a less controlled, more bottom-up approach. A "thought piece" written by the University of Wisconsin-Madison Associate Vice Chancellor for Teaching and Learning in March 2004 showed the variety of interdisciplinary programming that was developed by faculty over the years. These included interdisciplinary curricular programs such as Afro-American Studies and Women's Studies as well as organizations such as the Institute for Cross-College Biology Education. While opportunities for interdisciplinary graduate research is commonplace at the University of Wisconsin-Madison, they also have interdisciplinary initiatives for undergraduate students including courses that simultaneously satisfy communications and quantitative reasoning requirements and a "writing across the curriculum" program.

There are many other examples in the literature cited in the references.

At Ferris, a survey of deans, directors, and coordinators in the fall of 2015 yielded a list of 22 distinct interdisciplinary teaching initiatives currently in process (although there are some overlaps).

V. Assets and Obstacles

FSU has many assets that support academic interdisciplinary collaboration as well as several obstacles. Aldrich (2014) found that successful implementation of an interdisciplinary approach to undergraduate education requires a combination of motivated faculty, support from the institution, and "properly designed incentives" (pg. 139).

Among our assets, first and foremost is the interest of faculty. Our findings from a fall 2015 survey show an interest and enthusiasm from some administrators and faculty, despite the evident response bias. In addition, the mission of Ferris as a career-oriented institution whose core values include collaboration, along with a strategic plan that encourages collaboration, depict the value of academic interdisciplinary collaboration at Ferris. The size of our student population and the small classes that we typically offer support interdisciplinary collaboration. We have a well-organized and respected Faculty Center for Teaching and Learning with resources for faculty professional development to help instructors cross disciplinary lines. Finally, while easy to overlook, our Big Rapids campus is relatively small and multiple departments are often housed together. For example, all three of the colleges related to health are located in the same part of campus. The floors housing offices for most of the Arts and Sciences faculty include two or three different departments. Aldrich found that this physical proximity is a valuable asset in encouraging collaboration across disciplines.

Our obstacles tend to fall into one of two categories: incentives (identified by Aldrich) and logistics. These obstacles are not unique to FSU. Among incentive-related obstacles are recognition, workload and compensation, and department and college funding mechanisms. Promotion and tenure decisions are based mostly on recommendation of faculty, and faculty often reward contributions at the department level. This is common in academic culture, and was identified by Sapiro as an issue at the University of Wisconsin-Madison (2004). The work required to participate in an interdisciplinary teaching experience is nontrivial. McCoy and Gardner (2012) listed questions that universities must consider in order to implement interdisciplinary collaboration, and the first question concerns whether faculty have sufficient time to dedicate to projects. The annual 24-credit teaching load required of most

faculty at Ferris and similar institutions needs to be considered in light of this question. Finally, departments and colleges are funded based on student-credit hours. As a consequence, administrative support may be withheld for interdisciplinary courses where the student credit hours are awarded to a different department or college.

There are also logistical obstacles. These obstacles include communication, sustainability, and scheduling. While FSU is small and has the benefit of housing faculty from different disciplines near one another, there isn't necessarily a mechanism for different departments to communicate with one another in order to identify student needs that they can work together on. Sometimes conversations start, but there isn't continuing support to turn initial conversations into operational plans that can be acted on. Courses and programs that are initially started with enthusiasm may lose the support of the administration or the interest of the faculty involved. We also do not have the "institutional memory" to revive previous initiatives or learn the lesson of projects that didn't work. Finally, many who responded to the fall 2015 survey indicated that scheduling classes or finding time to work together was a challenge.

It should be noted that some faculty have raised the possibility that the FFA contract may pose an obstacle to interdisciplinary collaboration, but we found no clauses or language in the contract that would raise such barriers.

VI. Recommendations, Elaborations, and Justifications

Based on the discussion above, the benefits of interdisciplinary education are important enough to encourage and support faculty-driven endeavors to collaborate across disciplinary boundaries. The following recommendations we believe will make a significant impact, as indicated in the justifications.

Recommendation 1: The Provost should appoint a Director of Interdisciplinary Collaboration from among the faculty. The director will serve a term of 3 years and will be compensated by Academic Affairs with appropriate reassign time. The director will appoint a supporting committee.

The director's duties will include:

- bringing interested faculty together to work through projects and identify connections,
- leading faculty learning communities to facilitate the creation of interdisciplinary academic projects,
- assessing the state and impact of academic interdisciplinary collaboration,
- informing stakeholders of the progress of academic interdisciplinary collaboration, including at least one report to the Academic Senate per year at the senate retreat,
- maintaining records of academic interdisciplinary collaboration projects, and
- any other duties described in the other recommendations below.

The director will be selected by the Provost in a process that will include at least one opportunity for input by the university community. In the application, applicants should demonstrate that they will not show preference toward any individual units (colleges, departments, etc.). Organizationally, the director will report to the Provost.

Together with the director, the supporting committee will be responsible for:

- managing and reviewing logistical procedures that facilitate or obstruct academic interdisciplinary collaboration;
- as determined necessary by the committee, propose revisions through appropriate processes in order in order to improve the logistical support for academic interdisciplinary collaboration,
- reviewing and awarding grant funds as described in recommendation 2 below,
- planning the annual conference as described in recommendation 4 below, and
- any other duties described in the other recommendations below.

Logistical procedures should be reviewed at least once every three years.

The committee will include one representative from each of the colleges (not including the director) and will be chaired by the director. The director will only vote to break a tie. The Provost will appoint one representative from the Provost's office to serve as a non-voting member of the committee. Members of the committee will serve terms of 3 years, and the terms will be staggered. In order for terms to be staggered, initial terms for some members will be one year or two years.

Elaboration: The director and the committee will be the driving force behind supporting and promoting interdisciplinary collaboration. The Office of Academic Affairs will be required to determine the process that they will use to select the director and the amount of compensation. It is important that the process be transparent and, as recommended, include at least one opportunity for the university community to provide input. We also note that if the compensation is less than ¼ FTE, we may not attract candidates for the director position that will invest the time to help our interdisciplinary collaboration program grow.

We chose a three-year term to match the terms of other compensated faculty positions, such as the general education coordinator and the UCC chair. In theory, a three-year term would allow a director to learn the position during the first year, begin new initiatives in a second year, and carry out new initiatives in a third year. The position is renewable for additional terms of three years at the determination of the Provost.

The committee members will also serve three-year terms, but the terms will be staggered so that new directors will have the support of committee members from the outgoing director's committee to provide continuity.

We recommend one review of logistical procedures every three years so that each member of the committee participates in at least one review during their term. Any revisions identified will be proposed through appropriate procedures. For example, if a policy revision is necessary, it should be approved by the Academic Senate after being vetted by an appropriate Academic Senate Committee (currently Academic Policy and Standards Committee).

Justification: We are specifically recommending a mixture of the "bottom-up" and "top-down" approaches described by Aldrich (2014), but at every level the faculty directs the process. This approach is a good fit for the culture of Ferris and takes advantage of the enthusiasm of some faculty while not forcing other faculty to participate. Having a single director serve as a point person will help to improve the communication and sustainability obstacles while also helping to implement other recommendations. Other institutions have used similar approaches, such as the use of the Office of Student Engagement and Experiential Learning to coordinate the Themed Learning Communities

endeavor at Northern Illinois University. Another approach described by Pharo et al. (2012) involves funding a "network facilitator" to serve a role similar to the proposed director. This approach was designed to overcome institutional obstacles to interdisciplinary collaboration.

We feel that what is described in recommendation 1 would replace the "Academic Incubator" which is viewed as too limited in its scope and too tied to a single individual. Having a faculty committee that supports a faculty director, and having the director serve a fixed term, increases the participation and faculty-buy in.

Recommendation 2: Academic Affairs should set aside an annual amount of funding to be used as an internal grant program to support proposals specifically for collaborative, interdisciplinary academic projects that involve teaching and learning, fit the mission of the university, and do not overlap with existing internal grant opportunities.

The committee described in recommendation one above will establish the procedures by which faculty can submit proposals for funding under this grant program along with criteria for selection. Those procedures should include a simple and observable method to insure that funded proposals represent collaboration between two or more different disciplines and to make sure that the funding is justified based on the required effort in the proposal. Grant proposals will be required to include a plan for sustaining the project after completion of the proposed funded work.

The purpose of the internal grant is to provide seed money to support projects creating learning environments for students in which there are at least two disciplines involved and where the work of the disciplines is integrated. This purpose will be the principle that guides the committee in developing procedures and selecting awards.

Elaboration: The following are examples of the types of proposals or projects we envision this funding could support:

- Team-teaching an interdisciplinary course: funding would allow for the faculty members who are a part of the team-teaching effort to each have the course count fully toward "load." The team-teaching would involve more than one faculty teaching an interdisciplinary course at the same time and in the same place

- Linked courses with some measure of a shared interdisciplinary focus: funding could support, for example, the development and implementation of the shared interdisciplinary focus, and/or enabling the faculty to sit in on one another's classes.

- Team-designed interdisciplinary courses: funding could support the development of a new interdisciplinary course that could be taught by a single faculty member or by a team.

It will be up to Academic Affairs to determine the amount of annual funding available for the proposed internal grant program.

There are different funding models that could be selected, and the committee will have to make final choices. One funding model would provide reassign time. This is probably the most appropriate funding for team-taught or linked courses. For example, if two faculty were team-teaching, there may be a "primary" faculty member that "owns" the course while the other faculty member is a "secondary"

instructor. During the funded phase of the project, the "secondary" faculty member would receive a 3-credit course reduction. The funding would compensate the secondary instructor for their time in the course. If two faculty were linking their courses, both faculty members might be funded with 3 credits of reassign time. This will compensate the faculty members for sitting in one another's courses as they develop their links and their themes.

A second funding model would provide participants with stipends. For example, if 3 faculty members were designing a course as a team for one of the faculty members to ultimately teach, each of the 3 faculty members could be funded by a $1500 per semester stipend to support the design and development process.

If the Provost were to allocate $50,000 in an academic year for this grant program, then the committee could award 8 three-credit course buyouts ($6,000 per course buyout, based on typical replacement rates plus benefits), 33 stipends (based on $1,500 stipend amounts), or some mixture of less than 8 course buyouts and less than 33 stipends.

The committee and the director will be responsible for selecting appropriate funding models and conditions under which specific funding models will apply. We envision that proposers will select a funding model appropriate for their grant using guidelines offered by the committee along with further justification.

The second paragraph asks the committee to develop procedures for grant proposals, including an application form, along with criteria for award decision. Further to this point, the committee must come up with a means by which to determine whether a proposal is truly interdisciplinary. As an example, we might not consider mathematics and applied mathematics distinct. How we define different disciplines must be easy to identify ("observable"). Definitions of a "discipline" found in the literature tend to be based on "common cultures" or "common methods of inquiry" which are difficult to detect. On the other hand, defining features have to be operational at Ferris. While two faculty from different departments are likely to be from distinct disciplines, we may have faculty members within a department that really do represent different disciplines. For example, art history and philosophy are both housed in the Department of Humanities. In the task force, we discussed including a justification in proposals that makes the argument that the faculty really are from different disciplines. We also discussed including in the proposal a list of features distinguishing disciplines (different departments, different colleges, different professional societies, different course prefixes, for example) that proposers could check off.

In addition, proposals need to include a justification for the funding based on the effort required for the project. The example we considered in our discussions was a "team-teaching" among 3 faculty where one faculty teaches the first five weeks, the second teaches for the second five weeks, and the third teachers for the final five weeks, with no further collaboration. Such a project does not merit special funding, and each faculty member should be allocated 1/3 of the total credit load for the course.

Finally, proposals should include a plan to continue the project after the grant terminates. While we do not expect the plan will be firm and final, we want the committee to consider whether or not the project can be sustained. In recommendation three we note that the committee should develop mechanisms for long-term sustainability of interdisciplinary teaching and learning, in particular team-teaching.

The last paragraph is a mission statement of sorts, stated to guide the committee in their work and decisions. While we are imagining what can take place in courses, it is possible that proposers will have more creative ideas, and we want to leave room for that which may serve the purpose of the grant but it not forseen at this time.

Justification: An obstacle raised consistently in the literature and in conversations is the time required to engage in the collaborative process. This time should be compensated, and this compensation should depend on the needs of the proposed project. A team-designed course to be taught by a single faculty member may need stipends, while team-teaching may require reassign time. For this reason, we feel that a competitive grant process that requires proposers to justify their requested funds and how they will serve the needs of their project is the best mechanism to fund collaborative efforts.

In addition, internal grant awards are typically recognized in the promotion and tenure process.

Recommendation 3: The committee described in recommendation one should establish logistical procedures to support interdisciplinary teaching and learning, including but not limited to:

(a) a plan to sustain interdisciplinary teaching projects beyond initial funding from the internal grant program from recommendation 1;
(b) a mechanism to resolve competing faculty load and student credit hour calculations between different departments and between different colleges;
(c) an appropriate way to identify linked and team-taught courses in banner;
(d) a plan to advertise to students courses that result from or involve academic interdisciplinary collaboration; and
(e) a mechanism to house interdisciplinary programs.

These logistical procedures will be implemented through appropriate procedures, and should be initiated within the term of the first director.

Elaboration: The points that are specifically mentioned in the recommendation are the logistical issues that we have identified ourselves and in conversation with faculty. The most significant of these challenges for classroom teaching is a sustainability plan. Sustainability is particularly challenging with team-teaching. Team-designed courses are unlikely to need further funding once the course is developed and implemented. Often, linked courses only need initial funding to develop the links and the theme. The funding may support each faculty member attending one another's classes. After the funding period ends, the faculty members no longer need to attend one another's classes and can use their linked materials and assignments without the need for further funding. Team-teaching, on the other hand, requires faculty members to be in the team-taught course together.

There are a few models for funding team-teaching beyond an initial grant. One model involves establishing a schedule matching course caps to load. For example, if two people team-teach an interdisciplinary course that ordinarily has a course cap of 25, the course cap could be increased to 40 in order to compensate for the load of the team-teaching faculty members. The multiplier (i.e., the number by which we multiply the course cap) should be less than 2 (so 25 might increase to 40, but not 50, for example).

A second model to compensate team-teaching in the long-run is to allocate a portion of the credit load to each faculty member. For example, if two faculty members are team-teaching a 3-credit course, each

could be compensated with 2 credits of load. The additional credit would be a continued investment by academic affairs in the collaboration between the faculty.

Finally, a third model would involve stipends. For example, if two faculty team-teach, one faculty member would be the "primary" faculty member for whom the course counts toward their load. The second faculty member would be paid a stipend to compensate them for their role in the course.

It may not be the case that one of these funding models will fit all team-teaching approaches, so the committee may want to create guidelines rather than select a single model. In the long run, we envision that the director will be given authority by the Provost to arrange long-term funding for team-teaching and other interdisciplinary teaching and learning, subject to the Provost's approval.

In addition to load and compensation, the task force observed that while there have been collaborative interdisciplinary initiatives at the program level, it is unclear where those programs should be housed. Some programs are housed in one of the departments or colleges in the collaboration. Others, such as the program in integrative studies, are housed directly in deans' offices. This means program revision, curriculum proposals, and faculty appointments are tricky. In cases in which a faculty member's appointment is split between different units, there are obstacles to the promotion, tenure, and merit process. Finding a mechanism to resolve these issues would clear the way for interdisciplinary programs that could become a hallmark of the university.

We have given this task to the committee because we believe that these logistical matters need the attention of faculty, given their direct and ongoing experience in teaching. Moreover, the director and the committee are specifically charged with coordinating interdisciplinary teaching and learning, and in this capacity are directly focused on these issues. Finally, we recommended a timeframe in order to push the committee to begin working on these matters upon its conception. We feel that three years is realistic.

As with recommendation one, any revisions to procedures have to be processed. The process will depend on what is necessary to implement the revisions. For example, a policy revision should be approved by the Academic Senate after being vetted by an appropriate committee (currently the Academic Policy and Standards Committee).

Justification: Logistical details can strangle innovation before it has an opportunity to take hold. By instituting solutions to logistical obstacles to interdisciplinary teaching, the committee is providing necessary support to interested faculty by removing logistical burdens and allowing them to focus on the content of their collaboration.

Recommendation 4: Academic Affairs should sponsor an annual conference at Ferris State University dedicated to interdisciplinary teaching and learning.

Elaboration: The original idea was to sponsor an annual showcase for faculty to share their interdisciplinary teaching work with the rest of the campus community. This may be how we want to begin. But as the scope of interdisciplinary teaching grows at Ferris (which we hope it does), we may consider a statewide or even a national conference. This would help Ferris become a leading voice in interdisciplinary and collaborative post-secondary education.

Justification: An event such as an annual showcase or an annual conference will serve as a way to recognize faculty for their interdisciplinary work. This event is a way to bring attention to the community of innovative and collaborative efforts at Ferris. In addition, such recognition is often viewed positively in the tenure and promotion process.

Recommendation 5: Academic Affairs should sponsor an award to recognize academic interdisciplinary collaboration.

Elaboration: This award would be one of several Academic Affairs Awards that are solicited and awarded in the spring semester each year.

Justification: An award will encourage and incentivize collaborative work. In addition, Academic Affairs Awards are looked favorably upon in the promotion and tenure process.

VII. A Future Direction

The vision of this task force is to support the interdisciplinary and collaborative spirit of Ferris State University in academics. As noted, our recommendations request Academic Affairs to resolve some details. This is in response to a request from the Provost, who expressed a hope that the program envisioned within these recommendations will grow in scope over time.

To that end, one direction for the future growth of this program is establishing a unit (department or college) specifically for academic interdisciplinary collaboration. Such a unit could house programs, hire faculty specifically for interdisciplinary purposes, manage and promote interdisciplinary and collaborative courses, facilitate faculty development to support interdisciplinary collaboration, host conferences, and fund internal grant award programs. We view our recommendations as a first step that could lead to the creation of a unit.

VIII. Process

Members of the entire university were invited to join the Task Force on Academic Interdisciplinary Collaboration. Early in the process, we had a meeting with all members. Given the size of the group, this required two separate meetings. During these two initial meetings, we brainstormed all of the dimensions to the task. As a result of this brainstorming, the task force divided itself into the following subgroups:

1. Literature Review

   Description: Identify defining features, potential benefits to students, and potential downsides of academic interdisciplinary collaboration found in scholarly literature.

   Group Members: Virginia Hines, John Scott Gray, Sarah Rescoe, and Victor Piercey

2. Market Analysis ("environmental scanning")

   Description: Identify how interdisciplinary collaboration helps our students meet employer demands and expectations along with societal needs.

Group Members: Matt Wagenheim, Dave Nicol, and Daniel Cronk

3. What Other Institutions are Doing

   Description: Identify examples and models for academic interdisciplinary collaboration at other institutions, along with those institutions' assets that support that model.

   Group Members: Peter Balanda, Anil Venkatesh, and Andy Karafa

4. Accreditation

   Description: Describe how academic interdisciplinary collaboration may improve our standing with HLC and other accreditors, and potential accreditation-related obstacles.

   Group Members: Roberta Teahen, Wendy Samuels, and Rebecca Sammel

5. What FSU Already Does

   Description: Identify instances in which academic interdisciplinary collaboration already has or currently does take place at FSU, along with assets that enhance that collaboration and lessons learned from those experiences.

   Group Members: Michele Harvey, Daniel deRegnier, Steve Reifert

6. Faculty, Staff, and Administration Input

   Description: Identify attitudes, beliefs, and perceptions of stakeholders from Ferris regarding the academic interdisciplinary collaboration, specifically regarding interest and willingness to engage in collaborative projects, whether this is valued, and whether this is supported.

   Group Members: Vanessa Wyss, Todd Stanislav, and Piram Prakasam

7. Internal Logistics

   Description: Identify assets supporting and obstacles to academic interdisciplinary collaboration in the policies, contracts, procedures, practices, and funding models at FSU, along with suggesting potential ways to overcome those obstacles.

   Group Members: Peter Bradley, Kirk Weller, and Jim Rumpf

Early in the discussion we noted overlaps between these subgroups, so they were encouraged to communicate with one another and collaborate, furthering by example our underlying charge!

During the course of the academic year 2016-17, we met as a task force 3 times to update one another on our subgroups' work. This resulted in a draft of preliminary recommendations that have not changed substantially from what is presented in this document.

During the fall 2016 semester, we shared our preliminary recommendations to the university community and ask for their input. This was shared at the Academic Senate Retreat, in several college meetings, and in November with the Provost.

During the spring 2017 semester, we finalized this document and present it to the Academic Senate for endorsement.

Upon approval, this document represents the recommendations of the Academic Senate to the Provost and Vice President for Academic Affairs as well as the broader university community.

IX. Task Force Members

We are grateful to one another for our contributions. The following served on this task force:

1. Peter Belanda, Faculty, College of Arts and Sciences
2. Megan Biller, Staff, Doctorate in Community College Leadership, Academic Affairs
3. Peter Bradley, Director, Honors College
4. David Cronck, Faculty, College of Business
5. Daniel DeReigner, Faculty, College of Health Professions
6. John Scott Gray, Faculty, College of Arts and Sciences
7. David Griffith, Faculty, College of Arts and Sciences
8. Kristi Haik, Dean, College of Arts and Sciences
9. Michele Harvey, Faculty, College of Engineering and Technology
10. Virginia Hines, Faculty, College of Education and Human Services
11. Andy Karafa, Interim Dean, College of Arts and Sciences
12. Dave Nicol, Dean, College of Business
13. Victor Piercey (chair), Faculty, College of Arts and Sciences
14. Piram Prakasam, Director, International Office
15. Steve Reifert, Dean, College of Education and Human Services
16. Sarah Rescoe, Faculty, College of Arts and Sciences
17. Jim Rumpf, Faculty, College of Engineering and Technology
18. Rebecca Samel, Faculty, College of Arts and Sciences
19. Wendy Samuels, Department Chair, College of Arts and Sciences
20. Todd Stanislav, Director, Faculty Center for Teaching and Learning
21. David Scott, Faculty, FLITE
22. Robbie Teahan, Associate Provost for Accreditation, Assessment, Compliance, and Evaluation, Academic Affairs
23. Anil Venkatesh, Faculty, College of Arts and Sciences
24. Matt Waggenheim, Faculty, College of Education and Human Services
25. Kirk Weller, Interim Associate Provost for Academic Operations, Academic Affairs

26. Vanessa Wyss, Faculty, College of Education and Human Services

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FEB 0 7 2017

Form A
Effective Fall 2016

CURRICULUM PROPOSAL SUMMARY AND ROUTING FORM

Proposal Title: AA in Integrative Studies

Initiating Individual: Roxanne Cullen and Victor Piercey **Initiating Department or Unit:** CAS

Contact Person's Name: Roxanne Cullen **Email:** cullenr@ferris.edu **Phone:** x2713

NOTE: ALL required forms must be completed and included BEFORE submission of the proposal to the University Curriculum Committee.		FORM (checkboxes indicate typically required forms specific to the curricular action)					
PROPOSAL GROUP: See Table B-1 in the UCC Manual for description.	PCAF Link	A	B-UND B-GRA	C	D	EF	FIN
I-A: New Degree, major, concentration, minor, or redirection of a current offering	☒	☒	☐	☒	☒	☒	☒
I-B: Deletion of a degree, major, concentration, or minor		☐	☐			☐	
II-A: New Course, modification of a course, deletion of a course Check here if deleting a course		☐	☐ ☐	☐	☐	☐ ☐	
II-B: Minor Curriculum Clean-up		☐	☐	☐	☐	☐	☐
III: Certificate (☐ College Credit ☐ Non-credit ☐ New Certificate)	☐	☐	☐	☐	☐	☐	☐
IV: Other site location (☐ College Credit ☐ Non-credit)		☐	☐		☐	☐	☐
IV: Off Campus: Other site location (☐ College Credit ☐ Non-credit)	☐	☐	☐		☐	☐	
IV: Non-degree Offering : Other site location (☐ College Credit ☐ Non-credit)	☐	☐			☐		

	PLEASE PRINT and SIGN YOUR NAME	DATE	VOTE/ACTION * Number Count
Program Representative **	Roxanne Cullen Roxanne Cullen	2-7-17	✓ Support __ Support with Concerns __ Not Support __ Abstain
Department/School/Faculty Representative Vote **	N/A N/A	N/A	__ Support __ Support with Concerns __ Not Support __ Abstain N/A
Department/School Administrator	Joe Lipar	2/10/17	X Support __ Support with Concerns __ Not Support __ Abstain
College Curriculum Committee/Faculty	Mark Thomson	2/27/17	6 Support 0 Support with Concerns 0 Not Support 0 Abstain
UCC Representative	Olukemi Fadayomi	3/2/17	4 Support __ Hold __ Not Support
Dean	~~Kristi Haik~~ Joseph Lipar	3/2/17	X Support __ Support with Concerns __ Not Support
University Curriculum Committee **	Olukemi Fadayomi		__ Support __ Support with Concerns __ Not Support __ Abstain
Senate **	Khagendra Thapa		__ Support __ Support with Concerns __ Not Support __ Abstain
Academic Affairs	Leonard Johnson		__ Support __ Hold __ Not Support

* Support with Concerns or Not Support must include identification of specific concern with appropriate rationale.

** Number Count must be given for all members present and/or voting.

To be completed by Academic Affairs Date of Implementation: _____

_____ President (Date Approved

_____ Board of Trustees (Date Approved)

_____ Academic Officers of MI (Date Approved)

1. Proposal Summary: (Summary is generally less than one page. Briefly state what is proposed with a summary of rationale and highlights)
We are creating an associate degree in integrative studies. The program involves two required courses (COAS 100, COAS 291), both of which are new. The additional required courses are electives. The electives are to be selected from any 100 or 200 level course offered on campus for which the students have satisfied the prerequisites. The intention of the program is for the students to explore academic areas, develop an academic interest, and ultimately select a 4-year degree program.

The COAS courses are intended to complement the courses the students are taking, whether for general education purposes or as electives, in order to tie their academic investigations together. The new courses are designed to guide students through Bloom's taxonomy. Hence COAS 100 takes students through knowledge, comprehension, application, and analysis. COAS 291 takes students through synthesis, creation, and evaluation.

Students will take each course for two semesters consecutively. This arrangement will allow us to accept students starting in January by allowing them to enroll in COAS 100 along with continuing students (this has been the practice with COAS 495 in the BS program in integrative studies. We don't expect more than a couple of students to join the program in January, so there will not be enough for a standalone section of COAS 100 (or 291) just for them. For this reason, rather than creating separate courses for each of the four semesters of the program, we are creating separate courses that will last a full academic year.

The program will be housed directly in the College of Arts and Sciences (CAS), as the BS in Integrative Studies currently is.

For a more detailed rationale and program summary, see the attached narrative.

2. Summary of Curricular Action (Check all that apply to this proposal)

☐ Degree ☒ Major ☐ Minor ☐ Concentration ☐ Certificate ☒ Course

☒ New ☐ Modification ☐ Deletion

Name of Degree, Major, etc.: Associate of Arts in Integrative Studies

3. Summary of All Course Action Required:

A. Newly Created Courses to be Added to the Catalog

Prefix	Number	Title
COAS	100	Integrative Learning: From Knowledge to Analysis
COAS	291	Capstone in Integrative Studies: From Synthesis to Evaluation

B. Courses to be Deleted from FSU Catalog

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

C. Existing Courses to be Modified

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

D. Addition of existing FSU courses to program

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

E. Removal of existing FSU courses from program

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

4. Summary of All Consultations

Form Sent (B/B-UGPC or C)	Date Sent	Responding Department	Date Received & By Whom
Form C	12/12/16	FLITE	Click here to enter text.

5. Will External Accreditation be sought? (For new programs or certificates only)

☐ Yes ☒ No

If yes, name the organization involved with accreditation for this program. Click here to enter text.

6. Is a PCAF required? ☒ Yes ☐ No Is the PCAF approved? ☒ Yes ☐ No (If yes, supply link on Academic Affairs website where PCAF is posted.)

http://www.ferris.edu/HTMLS/administration/academicaffairs/Forms_Policies/PCAFs.htm

7. Program Checksheets affected by this proposal (Check all that apply to this proposal) **REQUIRED**

☐ Add Course ☐ Delete Course ☐ Modify Course ☐ Change Prerequisite ☐ Move from required to elective
☐ Move from elective to required ☐ Change Outcomes and Assessment Plan ☐ Change Credit hours

8. List all Checksheets affected by this proposal:

College	Department	Program
Click here to enter text.	Click here to enter text.	Click here to enter text.

No current checksheets will be affected. There is a new checksheet for the proposed program included as Form D.

Associates of Arts in Integrative Studies:
Proposal Narrative

The document, *Liberal Education and America's Promise* (LEAP) by the American Association of Colleges and Universities champions the value of a liberal education and opens with the statement that general education is essential "for individual students and for a nation dependent on economic creativity and democratic vitality." This document, used as a guide in our own general education review, calls for "broad integrative learning in the liberal arts and sciences—focused by engagement with big questions, both contemporary and enduring." (p.1) The strategies invoked for reaching this goal include: First-year seminars and experiences; Common intellectual experiences; Learning communities; Writing-intensive courses Collaborative assignments and projects; Undergraduate research; Diversity and global learning; Service and community-based learning; Internships Capstone courses and projects. Using these strategies as a guide, we have designed an associate degree in integrative studies.

The purpose of the Associate in Arts in Integrative Studies is to provide students with a program of study that develops their capacity for learning with the goal of preparing students to be autonomous learners. This degree does not prepare students for any single career choice but instead develops students' capacity to enter any career path upon completion. Today's workforce is looking for people who can communicate, work collaboratively, problem-solve, learn on the job and make connections. This degree program is designed to develop these capacities while at the same time fulfilling the bachelor's level general education requirements so that upon completion students can enter the bachelor of Integrative Studies or *any* bachelor's level program of study with the needed skills to successfully compete. The coursework is all lower division in order to accommodate TIP funded students. This program is not intended as a career exploration experience; in fact, it is just the opposite. Students will be encouraged to explore their interests without the pressure of committing to a specific career path.

While Ferris prides itself on the strength of it 180+ programs and the ability to recruit students with those specific program interests, there are many students who come to Ferris without that direct program focus who either choose a major that is "close" to what they think they would like to do, who test out several programs only to discover that the major was not what they imagined, or who start in one field and discover a new area of interest as they become introduced to subject matter they had not previously encountered. It is widely known that most college freshmen change their major in the first year of college. However, each time a student changes majors the student more often than not loses credits toward degree. This associate degree would allow students to discover their areas of interest while completing their general education requirement and avoid loss of credit in the process. The integrative nature of the program will be achieved through intensive advising whereby students take courses in the schedule that fit a certain theme and

are linked together by a two or three-credit experience (COAS 100, COAS 291) that guides students through Bloom's taxonomy.

The reason for differentiating between the associate level integrative studies and the bachelor level program in integrative studies (INST) is that incoming FTIACs are often not disciplined enough to handle the excessive freedom of the bachelor level INST degree. If they choose to elect the bachelor INST this two-year experience will prepare them for the autonomy and flexibility of the BS.

Program Features:

Students will focus on integrating the content from their coursework each semester allowing for increased independence and choice of theme. The theme for the first three semesters will be chosen by the advisors based on the courses offered in the schedule. For example, a semester could have a "popular culture" theme, with students taking HUMN 240: Popular Culture along with JRNL 251: Introduction to Mass Media.

The writing-intensive courses COAS 100 and COAS 291 will tie the semesters together. These courses are designed around Bloom's Taxonomy and are intended to assist students in discovering connections across the new content they gain in their other classes. During the first semester of the program, COAS 100 will support their acquisition of new knowledge and assist them in recognizing how new information fits with their prior knowledge. Students will summarize, paraphrase, and explain concepts that are gained in the other courses taken that semester. The course will also introduce students to concepts of student learning and how we learn while exploring strategies to improve their own learning and information retention. During the second semester, COAS 100 will build upon the first semester but will ask students to analyze and apply new concepts as well as relate new information to knowledge gained the previous semester. Students will explore the difference between knowing and understanding and develop strategies to foster retaining knowledge in long term rather than short term memory.

During the third semester, COAS 291 will build upon the first year by adding in the element of synthesis. Students will blend what they learned in their first year into a coherent paper, develop a research question or identify a problem that they would like to investigate, and identify coursework across at least three different disciplines for their last semester that will be tied to their question. They will prepare and defend a proposal for their work on their research question. During the fourth semester, COAS 291 will support their work on their individual research questions and bring together their sources materials and share with progress with one another. By the end of the semester they will have produced a research paper and publically presented their findings. They will also evaluate and assess their learning throughout the program, select (and apply for, if necessary) a four-year program, and compile an electronic portfolio.

Throughout the program, students will be encouraged to take advantage of experiential learning opportunities such as study abroad, service learning, and co-curricular activities.

Outcomes, Assessment, and Curriculum Map

In completing the associate of arts in integrative studies, student will:

Outcome 1: interpret problem solving through the integration of multiple disciplinary perspectives;

Outcome 2: integrate general education outcomes with long-term personal growth;

Outcome 3: appraise one's own learning after a sequence of courses; and

Outcome 4: describe plans to reach short-term and long-term career goals including the role of a bachelor's degree.

The outcomes will be assessed at through the electronic portfolio submitted by the end of COAS 291.

In the following curriculum map, a mark of "I" designates that the outcome will be introduced in the course, "R" designates that the outcome will be reinforced in the course, and "A" designates that the outcome will be assessed in the course.

Course	Outcome 1	Outcome 2	Outcome 3	Outcome 4
COAS 100 (1st semester)	I		I	
COAS 100 (2nd semester)	R	I	R	I
COAS 291 (1st semester)	R	R	R	R
COAS 291 (2nd semester)	A	A	A	A

Form C
Effective Fall 2016

FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. FLITE must return the original form to the Academic Senate office to be inserted in the proposal and a copy to the initiator. FLITE must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.

RE: Proposal Title: AA in Integrative Studies

Projected number of students per year affected by proposed change: up to 30

Initiator(s): Roxanne Cullen and Victor Piercey

Proposal Contact: Roxanne Cullen Date Sent: 12/12/2016

Department: CAS **Campus Address: ASC 1009**
(Please type)

Liaison Librarian Signature: Daniel D Kammeraad **Date Received:** 12/12/16

Dean of FLITE Signature: Click here to enter text. **Date Returned:** 12/14/16

Based upon our review on 12/12/16 (date), FLITE concludes that:

☒ Library resources to support the proposed curriculum change are currently available.

☐ Additional Library resources are needed but can be obtained from current funds.

☐ Support, but significant additional Library funds/resources are required in the amount of $ Click here to enter text..

☐ Does not support the proposal for reasons listed below.

Comment regarding the impact this proposal will have on library resources, collection development, or other FLITE programs. Use additional pages if necessary. Click here to enter text.

FORM D

Effective Fall 2106

FORM D GUIDELINES

MAJOR, MAJOR WITH CONCENTRATION, MINOR OR CERTIFICATE GUIDELINES

LABEL AS "CURRENT" and "PROPOSED" (if applicable) Highlight the changes on the current and proposed

Because Form D is a summary of the requirements for completing a major, major with concentration, minor or certificate granted by Ferris State University, it is essential that it contains all of the information listed below:

- Checksheet* (http://ferris.edu/HTMLS/administration/academicaffairs/mydegree/dwcontent/index.htm) with total credits required; specifying the minimum number of credits earned at FSU.
- General Education requirements including course levels, prerequisites and semester offered if applicable)
- Minimum number of 300 and 400 level courses
- All course prerequisites
- Any special admissions, continuation, or graduation requirements
- Student Learning Outcomes clearly linked to measurable Program Assessment Strategies
    - (See Appendix D Writing Student Learning Outcomes)
- A Term-by-Term plan for completion of the offering

It is recommended that checksheets include information about when required courses are typically offered.

* Because of the multiple versions of the checksheets, proposal initiators should contact MyDegree Director (mydegree@ferris.edu, X-5435) for the checksheets appropriate for their proposal.

FERRIS STATE UNIVERSITY

Integrative Studies – 61 Credits

Associate of *Arts* — ***College of Arts and Sciences***

ADMISSION REQUIREMENTS

New Students

- Placement into ENGL 150
- Placement into MATH 110
- Placement out of READ 176

Transfer Students

- Placement into ENGL 150
- Placement into MATH 110
- Placement out of READ 176

UNIVERSITY GENERAL EDUCATION REQUIREMENTS			
Prefix	###	Course Title (Prerequisites shown in parenthesis)	Crs
TIER 1: FOUNDATION COMPETENCIES			
COMMUNICATION COMPETENCY – 9 Credits Required (or their equivalent)			
COMM	121	**Fundamentals of Public Speaking**	3
ENGL	150	**English 1** (SAT 370 OR ACT 14 OR ENGL 074 with C- or better)	3
ENGL	250	**English 2** (C- in ENGL 150)	3
QUANTITATIVE LITERACY COMPETENCY – 3 Credits Required			
MATH	115 or 117	**Intermediate Algebra** (C- in MATH 110) **Contemporary Mathematics** (C- in MATH 110)	3 4
TIER 2: DISTRIBUTION COMPETENCIES			
NATURAL SCIENCES COMPETENCY – minimum 6 Credits Required; at least one must be a class with a lab			
		lab	
CULTURE COMPETENCY – 9 Credits Required *; Courses in this category must come from two different disciplines			
		(200+)	
SELF AND SOCIETY COMPETENCY – 9 Credits Required *; Courses in this category must come from two different disciplines			
		Foundation	
		(200+)	

Freshman Seminar Requirement, FSUS 100, is satisfied by:	COAS 100

* General Education Requirements - | must have a 200 level course in both Culture and Self and Society | The Self and Society Foundation course can be your 200+ course.

Prefix	###	Course Title (Prerequisites shown in parenthesis)	Crs
MAJOR REQUIREMENTS – 25 Credits Required (these courses ARE used to calculate the major GPA requirement)			
		If your program has a GPA requirement within the major, these are the courses that will be used to calculate the GPA. If you don't have this requirement then the additional courses can be combined here in the major section and the words about GPA in the yellow header can be removed.	
COAS	100	Integrative Learning: From Knowledge to Analysis (repeated for a second semester)	4
COAS	291	Capstone in Integrative Studies: From Synthesis to Evaluation (COAS 100, ENGL 150 with C- or better) (repeated for a second semester)	6
		ELECTIVE (select any 100 or 200-level course in consultation with advisor)	3
		ELECTIVE (select any 100 or 200-level course in consultation with advisor)	3
		ELECTIVE (select any 100 or 200-level course in consultation with advisor)	3
		ELECTIVE (select any 100 or 200-level course in consultation with advisor)	3
		ELECTIVE (select any 100 or 200-level course in consultation with advisor)	3

Integrative Studies - **Associate of Arts - 61 Credits**

ADDITIONAL GRADUATION REQUIREMENTS

Students must

- maintain a 2.00 cumulative GPA in all FSU courses
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree

DEGREE OUTCOMES (the outcomes will be used in TracDAT)	
1.	Interpret problem solving through the integration of multiple disciplinary perspectives.
2.	Integrate general education outcomes with long-term personal growth.
3.	Appraise one's own learning after a sequence of courses.
4.	Describe plans to reach short-term and long-term career goals, including the role of a bachelor's degree.

Semester-by-Semester layout of classes

If you are using templates in MyDegree the semester-by-semester layout is used to create the template. Talk with your Dean's office.

FIRST YEAR

Fall Semester

Class	Credits
COAS 100	2
ENGL 150	3
MATH 110	4
Cultural Comp.	3
Self and Soc.	3
Total Credits	15

Spring Semester

Class	Credits
COAS 100	2
COMM 121	3
MATH 117	4
Nat. Sci. (Lab)	4
Self and Soc.	3
Total Credits	16

Summer Semester

Class	Credits
Elective*	3
Elective*	3
Total Credits	6

SECOND YEAR

Fall Semester

Class	Credits
COAS 291	3
ENGL 250	3
Cultural Comp.	3
Self and Soc.	3
Elective	3
Total Credits	15

Spring Semester

Class	Credits
COAS 291	3
Cultural Comp.	3
Nat. Sci.	3
Elective	3
Elective	3
Total Credits	15

Summer Semester

Class	Credits
Total Credits	

* Study abroad encouraged.

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN:

☒ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201808

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: COAS 100 – Integrative Learning: From Knowledge to Analysis

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
							COAS	100	2	X		
Title: Click here to enter text.							Title: Integrative Learning: From Knowledge to Analysis					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
							2		Open only to majors in AA or BS in Integrative Studies		None	
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
Click here to enter text.							One of two required courses for the associate degree in Integrative Studies. COAS 100 is a writing intensive course intended to assist students in transitioning into college life while discovering connections across the new content they gain in their classes. The course will introduce the concept of integrative learning while supporting students' acquisition of new knowledge. In addition to meeting the outcomes for FSUS 100, the course will introduce students to multiple strategies for retaining information, posing questions for deep learning and transferring knowledge among disciplines. The course will be taken twice (semesters 1 and 2) for a total of 4 credits.					
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
Click here to enter text.							**Outcomes:**					

		Semester 1 • Students will recall previously learned information and relate that knowledge to new knowledge. • Students will reproduce knowledge gained in coursework and identify points in common • Students will identify strategies that support their learning • Students will identify needed information/knowledge and develop questions in relation to that needed information/knowledge Semester 2 • Students will apply content learned in coursework to common societal questions. • Students will contrast perspectives on a common question from multiple disciplinary viewpoints. • Students will produce questions that are inspired by their coursework. • Students will compare and contrast the disciplinary perspectives observed in their first-year courses. **Assessment** In both semesters, outcomes will be assessed using projects, papers, and oral presentations.
Course Outline including Time Allocation		Course Outline including Time Allocation
Click here to enter text.		Semester 1: Attitude toward error- 5 hours Learning as an iterative process- 5 hours Mindsets and grit – 5 hours Summary and Paraphrase- 5 hours Making Connections-5 hours Formulating Questions- 5 hours Semester 2: Disciplinary perspectives – 5 hours Posing questions for deep learning – 10 hours Transfer of knowledge among disciplines – 5 hours Breaking down and analyzing course content – 5 hours Comparing and Contrasting – 5 hours

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   ☐ Practicum
   ☐ Independent Study
B. College Code: AS
C. Department Code: COAS
D. Credit Hours:
   ☐ Variable
   ☒ Fixed
E. Minimum Credit Hours: 2
F. Maximum Credit Hours: 2
G. Hours may be repeated for additional credit:
   ☐ No
   ☒ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: 4
H. Levels:
   ☒ Undergraduate
   ☐ Graduate
   ☐ Professional
I. Grade Method:
   ☒ Standard Letter Grading
   ☐ Credit/No Credit
J. Does the proposed course replace an equivalent course?
   ☒ No
   ☐ Yes – *If yes, enter equivalent course:* Click here to enter text.
   Course Prefix, Number – Course Title
K. Term(s) Offered: Fall, Spring, Summer
L. Max Section Enrollment:
   Lecture: 23
   Lab: Click here to enter text.

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date: _____

Academic Affairs Approval Signature & Date: _____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐*SCACRSE,* ☐*SCADETL,* ☐*SCARRES,* ☐*SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN:

☒ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201808

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: COAS 291 – Capstone in Integrative Studies: From Synthesis to Evaluation

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT						PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar	Prefix	Number	Contact Hours	Lecture	Lab	Seminar
						COAS	291	3	3		
Title: Click here to enter text.						Title: Capstone in Integrative Studies: From Synthesis to Evaluation					
Credit Hours	Prerequisites	Co-requisites				Credit Hours	Prerequisites	Co-requisites			
						3	COAS 100, ENGL 150 (C- or better)				
Course/Catalog Description *(125 words)*						Course/Catalog Description *(125 words)*					
Click here to enter text.						This is a second-year capstone in integrative learning. Students will enroll for two semesters. During the first semester, students will synthesize what they have learned, formulate a research question or problem to investigate, select elective courses to support their research, and deliver a research proposal that outlines their plans. During the second semester, students will conduct their research with the support and integration of the learning in their coursework, publically present their findings, develop a career plan including the selection of a four-year degree, and compile an electronic portfolio summarizing their experience in the program demonstrating their mastery of the program outcomes.					
Course Outcomes and Assessment Plan						Course Outcomes and Assessment Plan					
Click here to enter text.						**Outcomes:** Semester 1					

		• Students will synthesize what they learned in their first year. • Students will identify a research question or societal problem to investigate. • Students will describe disciplinary perspectives on their selected problem. • Students will select courses to support their investigation of their selected problem. • Students will predict what their selected courses will add to their learning. Semester 2 • Students will research their selected problem using content learned in their coursework. • Students will publically present their findings from their research. • Students will appraise their learning in their first two years and what it means for their personal growth. • Students will defend a plan for a four-year degree program. • Students will create an electronic portfolio that demonstrates their mastery of the program outcomes. **Assessment:** Learning outcomes will be assessed with projects, papers, oral presentations, and an electronic portfolio.
Course Outline including Time Allocation		**Course Outline including Time Allocation**
Click here to enter text.		Semester 1: Synthesizing information from multiple disciplines: 10 hours Selecting and crafting a research question: 10 hours Credible vs questionable sources: 5 hours Describing disciplinary perspectives on a problem: 10 hours Delivering a research proposal: 5 hours Predicting and Learning: 5 hours Semester 2: Integrating coursework and research: 10 hours Problem solving across the disciplines: 10 hours

		Presenting research to a general audience: 5 hours Self-Assessment: 5 hours Researching 4-year degree options: 5 hours Portfolio development: 10 hours

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: AS

C. Department Code: COAS

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 3

F. Maximum Credit Hours: 3

G. Hours may be repeated for additional credit:
   - ☐ No
   - ☒ Yes – If yes, max times repeated: Click here to enter text. **OR max credits awarded: 6**

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:* Click here to enter text.

   Course Prefix, Number – Course Title

K. Term(s) Offered: Fall, Spring, Summer

L. Max Section Enrollment:
   Lecture: 23
   Lab: Click here to enter text.

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date: _____

Academic Affairs Approval Signature & Date: _____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:*_____
Entered: ☐ *SCACRSE,* ☐ *SCADETL,* ☐ *SCARRES,* ☐ *SCAPREQ*

FINANCIAL AID FORM

FORM FIN
Effective Fall 2016

To be completed by the Director of Financial Aid (DFA). The DFA must return the original form to the Academic Senate Office to be inserted into the original proposal and a copy to the initiator (proposer). The DFA must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for this proposal.

Proposal Title: AA in Integrative Studies

Initiators: Roxanne Cullen and Victor Piercey

Proposal Contact: Roxanne Cullen **Date Sent: 12/12/2016**

Department: CAS **Campus Address: ASC 1009**

Director of Financial Aid Signature: Heide Wisby **Date Returned: Dec. 12, 2016**

Please check all that apply:

☐ The new program is remedial as it prepares students for study at the postsecondary level. This program is not an eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is considered a preparatory program as it prepares a student for a given program, i.e., they do not meet the academic criteria to be admitted into the program. Student is only eligible for Federal Direct Loans for one year.

☐ The new program is a certificate program. Certificate programs are not eligible programs per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a teacher certification program where it provides coursework required for a professional State credential necessary for employment as an elementary or secondary school teacher, but for which the institution awards no academic credential. Students are eligible for Federal Direct Loans only at an undergraduate level.

☐ The new program is a teacher certification program that will award a certificate credential. Certificate programs are not eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a Bachelor Completion program; a two-year degree completion program that requires an associate degree or the successful completion of at least two years of college coursework as a prerequisite for admission. These are aid eligible programs and students may receive financial aid.

☐ The new program is a Master's, Professional, or Doctoral Degree/Major program that allows students to take some undergraduate courses where some deficiency exists. Please note, students are eligible to receive Federal loans for the program, but undergraduate courses will not be included in the total credit count to determine loan eligibility. Students must be half time (Graduate/Professional = 5 credits, Doctoral = 3 credits) in graduate level courses to receive Federal aid.

☒ The new program is an Associate's, Bachelor's, Master's, Professional, or Doctoral Degree/Major and is conferred upon graduation. Per Federal requirements, these are aid eligible programs and students may receive financial aid.

Please include the number of credit hours to earn the degree or credential being sought. This is required as it must be reported to the Department of Education as well as the National Student Loan Clearinghouse, regardless if students are receiving federal aid.

Credits Required to Earn Degree: 61

Victor I Piercey

From: Michelle L Johnson
Sent: Tuesday, February 7, 2017 8:44 AM
To: Roxanne M Cullen; Victor I Piercey
Cc: Kristi L Haik; Leonard R Johnson
Subject: PCAF - Integrative Studies
Attachments: 2017 - Integrative Studies AA.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning,

Your PCAF for AS, Integrative Studies was reviewed at the President's Council meeting on February 1st and approved to move forward with the curricular development process.

A copy of your proposal will be posted to the following website very soon:
http://www.ferris.edu/HTMLS/administration/academicaffairs/Forms_Policies/PCAFs.htm

Thank you,

Michelle Johnson | Administrative Assistant
to Associate Provost of Academic Operations
Ferris State University | Office of the Provost and Vice President for Academic Affairs
1201 S. State Street - CSS 310 | Big Rapids, MI 49307
(231) 591-3532 office · (231) 591-3592 fax · MichelleJohnson@ferris.edu

FERRIS STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

TO: Kirk Weller, Associate Provost, Academic Affairs

FROM: Kristi Haik, Dean, College of Arts and Sciences

RE: PCAF for Integrative Studies A.A.

DATE: December 9, 2016

The attached PCAF for an Integrative Studies A.A. has been given approval by the College of Arts and Sciences

cc: Mark Thomson

820 Campus Drive
Big Rapids, MI 49307-2225

Phone: (231) 591-3660
Fax: (231) 591-2618
Web: www.ferris.edu

PCAF: Associate of Arts in Integrative Studies

Since 2008 the University has offered a Bachelor of Integrated Studies (INST) degree. The proposed associate's program, which is also in integrated studies, is not simply a subset of the existing program. Rather, it offers an alternative for students who do not plan on study past an associate's degree and for undecided students who seek more curricular structure. The proposed associate's degree is particularly appropriate for TIP; INST cannot be used for TIP.

Typically an undecided student takes general education courses along with some entry level courses in areas of interest. Although this approach leads toward degree completion in a very broad sense, there isn't any additional curricular structure to direct a student's path. The proposed program provides that additional structure. Each semester the student works with her or his academic advisor to construct a schedule according to a theme. The student's schedule is accompanied by a two or three credit companion course that serves to integrate the courses according to the theme selected. During the last semester, the student works on a research question that builds on the curricular themes.

Three other Michigan universities offer integrative studies at the baccalaureate level; none offers an associate's degree option. The proposer (Roxanne Cullen) does not anticipate additional costs for the associate's option, although she does anticipate modest gains in enrollment (30 students after three years). The enrollment projection seems reasonable given the very strong annual increases in INST enrollment.

Personally, I believe the proposed associate's degree aligns with the mission of the institution, and it provides an option that may help to support the retention of undecided students. Consequently, I support.

Form PCAF – Preliminary Curriculum Approval Form Effective Fall 2015

Directions: This form should be completed using **11-point font** or larger, and should be no longer than six pages (excluding the signature/comment pages and references). For purposes of expediting the preliminary approval process, forms may be forwarded electronically by the initiator and from one administrative level to another.

Name(s) of proposal initiator(s): Roxanne Cullen and Victor Piercey
Department(s)/College(s): **College of Arts and Sciences**

Type of curriculum change (check one):

☒New degree
☐New minor requiring new courses/resources
☐New Concentration in existing degree/program
☐Curricular customization of existing program for off-campus cohort group
☐New certificate requiring 3 or more new courses and/or new resources
☐Existing program redirection or shift in emphasis if 3 or more new courses and/or new

1. Name of degree, major, concentration, certificate, or minor. Briefly describe the curriculum plan/template. **Associate of Arts in Integrative Studies. Students will take a combination of general education and elective courses that are packaged according to themes each semester. Advisors will plan the themes, and student coursework will culminate in posing a research question that will be investigated through the lens of different disciplines in humanities, social science, and natural sciences. The disciplinary perspectives will be provided through the courses selected for the fourth and final semester of the program. Each semester, students will take a 2 or 3-credit companion course that will serve to integrate the courses along the lines of the theme for that term and guide students through higher-order thinking skills according to Bloom's taxonomy.**

2. Target date for implementation. **Fall, 2018**

3. Briefly explain the rationale for this initiative. If the initiative involves customization of an existing program for delivery to an off-campus cohort group, also explain the nature of the proposed curricular customization. **The bachelor of Integrative Studies (INST) has become a popular degree option having grown from 24 majors in 2008 to a steady enrollment of 100+ in 2016. Students elect this degree program because of the great degree of flexibility it offers. Returning students currently in the workplace relish the opportunity to identify specific course concentrations that will enable them to move within their current workplace or to move to a more attractive work environment. Traditional students use the flexibility to tailor a degree to fit their career goals, which might be a specific job or often a specific graduate program. What all these students have in common is a clear sense of purpose. In order to be successful with the INST degree, students have to know**

what their goal is whether it is a career path or graduate education. For that reason, freshmen who apply to the program are usually counseled to enroll in an associate degree until they determine what that goal might be.

We are proposing an associates degree in Integrative Studies, which would allow students to explore their areas of interest while completing their general education requirement. The purpose of the Associate in Arts in Integrative Studies is to provide students with a program of study that develops student capacity for learning with the goal of preparing students to be autonomous learners. This degree does not prepare students for any single career choice but instead develops students' capacity to enter any career path upon completion.

This program is not intended as a career exploration experience; in fact, it is just the opposite. Students will be encouraged to explore their interests without the pressure of committing to a specific career path. The expectation is that by the end, students will select a 4-year degree program and be prepared to successfully complete their choice. The coursework is all lower division in order to accommodate TIP funded students.

4. Are there similar programs at other Michigan universities? If so, where? What is the enrollment in the other programs? While other institutions in Michigan offer bachelor's degrees in integrative studies (Michigan State University, Oakland University, and Grand Valley University), none offer an associates degree program.

5. Briefly explain any similarities of the proposed initiative (program objectives and/or curriculum) with already established FSU or KCAD programs: The closest is the integrative studies program (INST), but that is a bachelor's program while this is an associate's program.

6. Briefly describe indicators of the employment market for students completing this initiative, including sources used for employment information/data. **While the intent of the program is to prepare students to complete a bachelor's level degree, the program is also expected to enhance employability upon graduation in any degree area. Today's workforce is looking for people who can communicate, work collaboratively, problem-solve, learn on the job and make connections, adapt and be self-reliant. This degree program is designed to develop these capacities while at the same time fulfilling the bachelor's level general education requirements so that upon completion students can enter the INST program or another bachelor's level program of study with the needed skills to successfully complete.**

7. Briefly describe indicators of potential student interest/demand for the new initiative, including sources used for student market information/data. As stated above, the INST program has grown from 24 students in 2008 to over 100 students in 2016, an average of over 19.5% per year. This is an indication of demand for integrative studies programs. Because of the crisis in student financial aid, incoming students are more cautious than ever about changing programs and extending their time in college. This degree would provide a positive alternative for students who are not sure about their career path.

8. To what extent will this initiative draw new students to FSU or KCAD? To what extent will it draw students from existing programs? We expect that the program will initially draw undecided students who have satisfied the prerequisites for admission (placement into ENGL 150, MATH 110, and placement out of READ 176). Once established, the new program will be able to be marketed to draw new students into FSU. This degree will appeal to incoming students who want to experience a wide breadth of a liberal arts education, focusing on a variety of subject areas, critical thinking, and interdisciplinary study. This degree will also appeal to students who have an area in mind that isn't necessarily offered as a degree program at Ferris, or to students who may be undecided and would like to explore 4-year degree options.

9. Approximately how many students are expected to enroll? Include rationale for estimates.

   10 in the first year? _____ 30 after three years?

10. At which FSU campuses/regional centers or other sites will the initiative be offered? Big Rapids

11. Will Internet or other distance learning technology be used for course/program delivery? Describe.No.

Complete questions 12, 13, 14 in consultation with department administrator and/or dean.

12. Provide a rough estimate of the resources needed to implement the initiative. Please attach a three year budget to include faculty salaries plus benefits, library materials estimate, equipment and classroom materials estimate, and renovation estimate. Within 3 years, there will be no need for new resources for the creation of the program.

13. Project the resources that could come from reallocation within the department or college and the new resources that would be required. Again, there would be no need for new resources in the first 3 years.

14. Are there new space needs? If so, how much? How would the space be used? Has existing space been identified? If so, where? Is renovation/remodeling necessary? No

15. Is there professional accreditation for the program? Is it required or voluntary? Will accreditation be sought, and when? What will be the one- time and ongoing costs of accreditation? No

16. Has there been preliminary discussion with other departments/colleges that will be involved in course/program delivery? If yes, what was the feedback? No department will be asked to provide any course delivery that is not part of their current general education offerings. The selection of courses will be determined by what is on the schedule. Should the program grow to a point where scheduling specific sections of general education electives could be possible, then we would ask if designated sections

would be possible; however, it would not be a necessity. If the program does attract new students to FSU the departments would provide additional sections of general education courses as they do whenever we have enrollment growth.

Department Faculty's signature: Roxanne Culbert Date 12-7-16

Note: Faculty signatories are tenure-track faculty who are involved with initiation of the proposal or who are collaborating with an administrator on the proposal.

Comments: **Click here to enter text.**

Department Administrator's signature: N/A Date_____

Note: If this is an interdepartmental initiative, include additional Department Administrator signatures

Comments: This program will be housed directly in the office of the Dean of the College of Arts and Sciences, and not in any department.

Dean's signature: Kristin Hahn Date 12-9-16

- For cross-college initiatives, include additional signature(s) of Dean(s)
- For existing programs customized for off-campus delivery to a cohort group, include College and EIO Deans' signatures

Comments: **Click here to enter text.**

Provost's Signature: Kelli Pickel Date 12/13/16

☒ Approved - Approval indicates permission to develop the full proposal. It does not assure final approval.

Comments and/or suggestions: **Click here to enter text.**

☐ Not approved - Explanation: Click here to enter text.

c. Initiator(s)
Department Administrator(s)
Deans' Council
University Curriculum Council
Academic Senate
VPEIO
Provost
FSU Intranet

FERRIS STATE UNIVERSITY
RETENTION & STUDENT SUCCESS

TO: Roxanne Cullen

FROM: Brooke Moore, Coordinator of First-Year Seminars BM

DATE: January 11, 2017

SUBJECT: Accepted Proposal to Count Course for FSUS Requirement

This copy is provided for your information regarding the approval of the COAS course as satisfying the FSUS requirement. Follow-up questions about the course itself can be directed to Roxanne Cullen at RoxanneCullen@ferris.edu or 231.591.2713. You may also contact me about any FSUS related questions at BrookeMoore@ferris.edu or 231.591.3633.

Cc: Amy Carmack
Kemi Fadayomi
Krist Haik
Joe Lipar
Records Office
Deedee Stakely

820 Campus Drive, ASC 1048
Big Rapids, MI 49307-2225

Phone: (231) 591-3716

Proposal to Count Course for FSUS Requirement

1. Requesting unit:
   A. Completes a request for embedded FSUS Course and forwards to FSUS Coordinator. Submitted request will include signatures from the requesting unit's Department Head/Chair and Dean.

2. FSUS Coordinator reviews request and:
   A. Forwards to Associate Provost for Retention & Student Success
   OR
   B. Returns to requesting unit for revision.

3. Associate Provost for Retention & Student Success:
   A. Approves and forwards request to Vice President for Academic Affairs for approval
   OR
   B. Returns to requesting unit for revision
   OR
   C. Denies Request

4. Copies of approved request are sent to
   __FSUS Coordinator
   __ Associate Provost for R&SS
   __Contact person for requesting unit
   __Department Head of requesting unit
   __Records Office
   __UCC

Proposed embedded FSUS Course: _____COAS 100_____

Request for Embedded Course submitted by:

Department Head/Chair , submitting college	Date
Department	College
Dean, submitting college	Date

Approval for accepting the proposed embedded FSUS course has been granted by:

FSUS Coordinator	Date
Associate Provost, R&SS	Date
Vice President, Academic Affairs	Date

Proposal to Count Course for FSUS Requirement

Requesting College:	CAS	Contact Person:	Roxanne Cullen
Requesting Department:	NA	Contact's Telephone:	X2713
Course Name:	Integrative learning	Contact's E-mail	cullenr@ferris.edu
Course ID:	COAS 100		

Course Description:
COAS 100: Integrative Learning is one of two required courses for the associate degree in Integrative Studies. COAS 100 is a writing intensive course intended to assist students in transitioning into college life while discovering connections across the new content they gain in their other classes. The course will introduce the concept of integrative learning while supporting students' acquisition of new knowledge. In addition to meeting the outcomes for FSUS 100, the course will introduce students to multiple strategies that support learning and retaining information. The course will be taken twice (semesters 1 and 2) for a total of 4 credits.

Please attach a copy of the course syllabus to this proposal.

Is the proposed embedded course a program requirement for your degree / program? (circle one **Yes** **No**

Please provide justification for embedding FSUS objectives into current/new course:
In the newly proposed associate in Integrative Studies, students will take 15 credits each semester with the initial semester courses chosen by the advisor with the intent of developing a thematic link to help students begin to see connections between and among their general education courses. In year one students will be enrolled in a two credit writing intensive Integrative Studies course (COAS 100) which will serve as the link that fosters integration of the rest of the courses. The course will naturally meet the course objectives of FSUS 100 and additionally serve as an advising tool as well as an academic enhancement to their other courses.

Please indicate how the purpose and goals for FSUS 100 will be achieved in the embedded course:

Purpose - The Purpose of the Ferris State University Seminar Class is to provide first year students with personal connections, knowledge, and resources that will enhance their potential for learning, safety, satisfaction & graduation.

The purpose of this course is aligned with FSUS 100 in that the intent is to provide the first year students with personal connections (achieved through the linked courses), knowledge and resources (intensive advising) that will enhance their learning capacity and prepare students to apply to a bachelor degree program with general education completed and a sense of learner autonomy as well as critical self assessment.

Goals - To facilitate student transition from high school to university life and by so doing improve student academic performance and retention. Students will develop a relationship with FSUS faculty members that will serve as an internal model for interactions with future teachers.

The COAS 100 course will serve as a transition to college life as well as college learning strategies with a focus on the learning that is happening in the content courses chosen for that semester and recognizing linkages between and among the general education curriculum. Additionally, students will focus on learning as an iterative process that involves learning from error. Because all the students in the course will be enrolled in the same set of general education classes, the advising and sense of community will be enhanced and intrusive.

Proposal to Count Course for FSUS Requirement

For each of the FSUS100 objectives listed below, include a brief narrative indicating the manner in which all objectives will be achieved in the proposed embedded course:

#	Objective and Proposed Method for Achieving Objective	Method Approved?
1	Students will: become familiar with campus resources and technology (academic, student, and personal support services); • Library tour early in the semester • Academic support services (where and how to) • Health, counseling and rec centers • Introduce and remind students to check campus email frequently The academic advisor will take the students to the library and also make them aware of support services.	Yes No
2	develop an awareness of learning strategies to adapt in various educational environments; • Complete learning strategies inventory and discuss how to use the information obtained to utilize their preferred methods and to improve upon those that are not preferred • Introduce basic study strategies • Introduce Bloom's taxonomy of learning emphasizing the difference between knowing and understanding as well as short and long term memory The first assignment will be a SWOT analysis of their strengths and weaknesses as a student and then the opportunities the university offers to support them and the threats that all college freshmen face. Students will also read Dweck's *Mindsets* which will address academic tenacity and dealing with failure.	Yes No
3	gain an understanding of wellness issues that directly affect their health and safety; • Drugs and alcohol (Beer,, Booze and Books) • Sexual health and personal responsibility (Communication and Consent) • Campus safety. The advisor will ensure that the students attend the above presentations. Additionally Terry Doyle's book *The New Science of* Learning will be a required text. This book focuses on how health affects the brain and the ability to learn.	Yes No

#	Objective and Proposed Method for Achieving Objective	Method Approved?
4	learn to develop effective time management and goal setting strategies; • Effectice use of time (balance between study and social) • How to build a study schedule • How to use a planner and to-do list • Understandina and avoiding procrastination • How to set realistic goals Time management and goal setting will be part of the management of learning that is taking place across the general education courses for which they are enrolled. Students will create study groups and establish group timelines related to assignments and tests in the courses for which they are enrolled. They will also be asked to monitor how they spend their time and to build in time for exercise and sleep. The SWOT analysis assignment is one that will be reviewed and reassessed throughout the course and in that assignment they are asked to monitor their time; maintain and report on study efforts both individual and group; identify due dates for assignments and plan out strategies for completing assignment early and use tutoring prior to submitting assignments.	Yes No
5	learn to understand, respect, and value diversity in its many forms; • FSU's student dignity and harassment policy • Diversity activity and/or discussion The themes that will be chosen by the advisor will directly address issues of diversity. The first semester, for example, may pair Geography of World Regions with World Short Fiction and Introduction to Anthropology. Issues of diversity are inherent the commonalities of these courses to be discussed. In the first year themes may include : Global Awareness; Popular Culture and Mass Media; etc. The goal of the course is to look at issues from the multiple perspectives of academic disciplines. Students will also be required to go to the Jim Crow museum for one assignment that asks them to examine an issue or theme from multiple disciplinary lenses.	Yes No
6	learn about academic advisor/advisee relationships and course registration; As with the bachelor of Integrative Studies, the associate in INST will be advising intensive and the course will be taught by the academic advisor. In the first year of the associate degree students will have no free electives. The advisor will be selecting courses based on the themes mentioned above. All students take the same set of courses. Students will be taught how to use the registration system to select classes and to use the mydegree planner. Even thought students will be preregistered for courses by the advisor, in the course they will look at the registration system and consider factors that one should consider when building a schedule, including instructor, time of day, number of classes per day, where courses are taught, class size, etc.	Yes No

Proposal to Count Course for FSUS Requirement

#	Objective and Proposed Method for Achieving Objective	Method Approved?
7	become active participants and contributors in the campus and community; • Require no less than 3 and no more than 6 out-of-class events • Attendance at Beer, Booze and Books and Sex and the College Student will be required • The degree emphasizes the importance of learning that takes place inside and outside the classroom and that taking part in RSOs and other campus activities broaden one's understanding of the learning that is taking place inside the classroom. Students are encouraged to take part in volunteer activities, active learning opportunities, academic service learning, study abroad, etc. Assignment on Horizontal and Vertical learning directly address these outcomes.	Yes No
8	learn about and understand academic integrity and classroom etiquette skills that foster appropriate conduct in a post-secondary institutional setting; • Code of Community Standards Students will discuss academic integrity as they summarize and synthesize the information they are gaining in their general education classes. Because the course is writing intensive documentation of source material will be covered. Appropriate classroom etiquette will be practiced in the class itself.	Yes No

Proposal to Count Course for FSUS Requirement

#	Objective and Proposed Method for Achieving Objective	Method Approved?
9	be introduced to financial literacy • Financial aid • How to manage finances • How to minimize student debt • Cost of withdrawing from a course • Satisfactory Academic Progress (SAP) • How to search for scholarships This information will be covered in the class in relation to the horizontal/vertical knowledge unit and with planning for the future. The SWOT analysis is predicated upon the idea that school is a financial investment. As part of that assignment, looking at strengths, weaknesses, opportunities and threats, financial literacy will be built in regarding the threats to success and the ability to complete their education. Opportunities also covers financial aid and the help that can be found through that office.	Yes No
10	learn about the University's mission, core values, and historical development. • Ferris Pride! • Introduction of core values with objectives We have defined the Integrative Studies bachelor degree as being consistent with the values of Ferris in a new social reality. In other words, like the out of work lumber jacks who came to Ferris to reinvent themselves, today's INST students are more often than not reinventing themselves while inventing their own programs. The skills taught at the associate level are meant to prepare students for a life of reinvention as we teach them to develop life long learning capacities and learning autonomy rather than preparing for a single occupation. The University mission and core values will be discussed as we align the program goals with our mission to develop these capacities.	Yes No

Syllabus Attached? (circle one) Yes No

#17-098

FEB 07 2017

Form A
Effective Fall 2016

CURRICULUM PROPOSAL SUMMARY AND ROUTING FORM

Proposal Title: : **Bachelor of Science Degree in Biochemistry**

Initiating Individual: **Konara Y. Kollalpitiya, Kim K. Colvert**

Initiating Department or Unit: Physical Sciences

Contact Person's Name: Kim K. Colvert Email: colvertk@ferris.edu Phone: ext.5851

NOTE: ALL required forms must be completed and included BEFORE submission of the proposal to the University Curriculum Committee.		FORM (checkboxes indicate typically required forms specific to the curricular action)					
PROPOSAL GROUP: See Table B-1 in the UCC Manual for description.	PCAF Link	A	B-UND B-GRA	C	D	EF	FIN
I-A: New Degree, major, concentration, minor, or redirection of a current offering	☒	☒	☒	☒	☒	☒	☒
I-B: Deletion of a degree, major, concentration, or minor		☐	☐			☐	
II-A: New Course, modification of a course, deletion of a course Check here if deleting a course		☐	☐ ☐	☐	☐	☐ ☐	
II-B: Minor Curriculum Clean-up		☐	☐	☐	☐	☐	☐
III: Certificate (☐ College Credit ☐ Non-credit ☐ New Certificate)	☐	☐	☐	☐	☐	☐	☐
IV: Other site location (☐ College Credit ☐ Non-credit)		☐	☐		☐	☐	☐
IV: Off Campus: Other site location (☐ College Credit ☐ Non-credit)	☐	☐	☐		☐	☐	
IV: Non-degree Offering : Other site location (☐ College Credit ☐ Non-credit)	☐	☐			☐		

	PLEASE PRINT and SIGN YOUR NAME	DATE	VOTE/ACTION * Number Count
Program Representative **	Kim K. Colvert Konara Y. Kollalpitiya	01/18/2017	✓ Support __ Support with Concerns __ Not Support __ Abstain
Department/School/Faculty Representative Vote **	David V. Frank	2/7/2017	10 Support 0 Support with Concerns 0 Not Support __ Abstain
Department/School Administrator	David V. Frank	2/7/2017	✓ Support __ Support with Concerns __ Not Support __ Abstain
College Curriculum Committee/Faculty	Mark A. Thomson	2/14/17	6 Support 1 Support with Concerns __ Not Support __ Abstain
UCC Representative	Olu Kemi Fadayomi	2/21/17	__ Support __ Hold __ Not Support
Dean	~~Kristi Haik~~ Joseph Lyon	2/22/17	X Support __ Support with Concerns __ Not Support
University Curriculum Committee **			__ Support __ Support with Concerns __ Not Support __ Abstain
Senate **			__ Support __ Support with Concerns __ Not Support __ Abstain
Academic Affairs			__ Support __ Hold __ Not Support

* Support with Concerns or Not Support must include identification of specific concern with appropriate rationale.

** Number Count must be given for all members present and/or voting.

To be completed by Academic Affairs Date of Implementation: _____

_____ President (Date Approved)

_____ Board of Trustees (Date Approved)

_____ Academic Officers of MI (Date Approved)

1. Proposal Summary: (Summary is generally less than one page. Briefly state what is proposed with a summary of rationale and highlights)

The Bachelor of Arts degree in Biochemistry currently offered by Ferris is flexible enough in its configuration to have prepared students for career paths that have included employment in industry, medical school and graduate school. Regrettably, perception exists among some employers, graduate school admissions committees, and some students that a BA is less useful than a Bachelor of Science. While not necessarily true we can address this concern directly by offering a BS degree in Biochemistry.

According to the Bureau of Labor and Statistics there were 34,100 jobs in biochemistry at all degree levels in 2014. The projected rate of growth is 8% nationally over 10 years and in Michigan it is projected to be 10.9%. The proposed degree may draw student interest due to the fact that it is applicable to careers in diverse industrial and research areas such as biotechnology, crystallography, oil and petroleum and forensic, medicinal, nuclear and personal care chemistry. Biochemistry BS programs are offered in numerous Michigan universities and the majors numbers are substantial. For institutions in the area, enrollment in biochemistry at Central Michigan University is 89 students, at Grand Valley State University the number is currently 58 and there are about 160 students enrolled in the biochemistry program in Calvin College. Making this option available to Ferris students could help with recruitment and retention.
The requirements for this degree have been formulated using existing Ferris courses to be similar to degrees offered at other universities. Implementation will not require additional faculty, space or resources for the near future.

While the proposed program has some overlap of course requirements with the BA in biochemistry offered by the Physical Sciences department and the BS in biotechnology in the Biology department, the BS in biochemistry would distinguish itself from both programs by focusing and expanding on the math, biology, and chemistry requirements beyond those required for the BA resulting in an enhanced quantitative science degree. The intense focus in biotechnology on modern biotechnology laboratory techniques would remain unique to that program. Which degree is better for a student depends largely on their career goals. In addition, the core courses of the BA in chemistry and the BS in industrial chemistry are similar but the focus and ancillary courses in these programs are quite different.

The program will most likely be populated by existing and entering Ferris students who want a Bachelor of Science degree and enjoy the challenge of advanced math and chemistry. It may impact enrollment in the BA but it is not intended as a replacement at this time. The BA program provides opportunities to students interested in the field but with less technology-intense career goals. For instance, a student planning to pursue graduate work in Biochemistry might be best served by the BS degree. One who wishes to enter a graduate Science Writing program might choose the BA with a minor in Technical Writing.

2. Summary of Curricular Action (Check all that apply to this proposal)

☐ Degree ☒ Major ☐ Minor ☐ Concentration ☐ Certificate ☐ Course

☒ New ☐ Modification ☐ Deletion

Name of Degree, Major, etc.: **Bachelor of Science Degree in Biochemistry**

3. Summary of All Course Action Required:

A. Newly Created Courses to be Added to the Catalog None

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

B. Courses to be Deleted from FSU Catalog None

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

C. Existing Courses to be Modified None

Prefix	Number	Title
Click here to enter text.	Click here to enter text	Click here to enter text.

D. Addition of existing FSU courses to program

Prefix	Number	Title
BIOL	121	General Biology 1
BIOL	122	General Biology 2
BIOL	375	Principles of Genetics
BIOL	470	Molecular Genetics
BIOL	474	Advanced Cell-Molecular Biology
CHEM	121	General Chemistry 1
CHEM	122	General Chemistry 2
CHEM	321	Organic Chemistry 1
CHEM	322	Organic Chemistry 2
CHEM	231	Quantitative Analysis
CHEM	332	Biochemistry Lab 1
CHEM	333	Biochemistry Lab 2
CHEM	364	Biochemistry
CHEM	451	Intro to Physical Chemistry
CHEM	474	Advanced Biochemistry
CHEM	497	Special Studies in Chemistry
MATH	220	Analytical Geometry and Calculus 1
MATH	230	Analytical Geometry and Calculus 2
PHYS	211	Introductory Physics 1
PHYS	241	General Physics 1
PHYS	212	Introductory Physics 2
PHYS	242	General Physics 2

E. Removal of existing FSU courses from program None

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

4. Summary of All Consultations

Form Sent (B/B-UGPC or C)	Date Sent	Responding Department	Date Received & By Whom
B-UND	01/18/17	Biology	
B-UND	01/18/17	Math	
C	01/18/17	Flite	

5. Will External Accreditation be sought? (For new programs or certificates only)

☐ Yes ☒ No

If yes, name the organization involved with accreditation for this program. Click here to enter text.

6. Is a PCAF required? ☒ Yes ☐ No Is the PCAF approved? ☒ Yes ☐ No
http://www.ferris.edu/HTMLS/administration/academicaffairs/Forms_Policies/PCAFs.htm

7. Program Checksheets affected by this proposal (Check all that apply to this proposal) REQUIRED

☒ Add Course ☐ Delete Course ☐ Modify Course ☐ Change Prerequisite ☐ Move from required to elective
☐ Move from elective to required ☐ Change Outcomes and Assessment Plan ☐ Change Credit hours

8. List all Checksheets affected by this proposal:

College	Department	Program
Arts and Sciences	Physical Sciences	Bachelor of Science in Biochemistry

FORM B - Undergraduate

Effective Fall 2016

To be completed by each department affected by the proposed change, addition, or deletion. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the administrator of the department to be consulted.
2. The department must respond within 10 business days of receipt of this form to insure inclusion in the final proposal. The completed original is returned to the Academic Senate Office to be inserted into the proposal and a copy is returned to the initiator.

   The department must acknowledge receipt of this form and the proposal in writing to the initiator.

   Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.
3. The Proposing Department must address any concerns raised by the consulted department. This response must be in writing and will be included in the proposal following the original consultation form.

RE: Proposal Title: Bachelor of Science Degree in Biochemistry

Initiator(s): Konara Y. Kollalpitiya, Kim K. Colvert

Proposal Contact: Kim K. Colvert **Date Sent:** 01/18/17

Department: Physical Sciences **Campus Address:** 820 Campus Drive, ASC 3021
(Please type)

Based upon department faculty review on Click here to enter text. (Date) we:

- ☒ Support the above proposal.
- ☐ Support the above proposal with the modifications and concerns listed below.
- ☐ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary. Click here to enter text.

Responding Department: Mathematics

Administrator: Kirk Weller **Date Received:** 01/18/17 **Date Returned:** 01/23/17

Signature: 

FORM B - Undergraduate

Effective Fall 2016

To be completed by each department affected by the proposed change, addition, or deletion. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the administrator of the department to be consulted.
2. The department must respond within 10 business days of receipt of this form to insure inclusion in the final proposal. The completed original is returned to the Academic Senate Office to be inserted into the proposal and a copy is returned to the initiator.

   The department must acknowledge receipt of this form and the proposal in writing to the initiator.

   Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.
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RE: **Proposal Title:** Bachelor of Science Degree in Biochemistry

Initiator(s): Konara Y. Kollalpitiya, Kim K. Colvert

Proposal Contact: Kim K. Colvert **Date Sent:** 01/18/17

Department: Physical Sciences **Campus Address:** 820 Campus Drive, ASC 3021
(Please type)

Based upon department faculty review on 01/19/2017 (Date) we:

- ☐ Support the above proposal.
- ☐ Support the above proposal with the modifications and concerns listed below.
- ☒ Do not support the proposal for the reasons listed below.

2 support/1 support w concerns/8 do not support/1 abstain

Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary.

My vote is currently Support with Concerns, which are below along with some questions. I am open to changing my vote and to discussing the proposal with the physical sciences faculty and the proposal initiator. I agree that a BS in Biochemistry will make students more competitive and support the overall goal of the proposal.

1) Though our chair informs me that the number of Biochem majors is currently small, if the major grows (as would seem desireable) then the several new biology classes that were not in the Biochem BA degree (BIOL 470 and 474) would see increased enrollment. Knowing the exact number of current Biochem majors would help us gauge this impact. Brad Isler teaches these, and I suggest he be consulted on how this may impact his classes. These courses are only offered every other year, and if students cannot take it at the suggested time this may delay graduation or force a course substitution.

2) I quickly searched the catalog and only saw four 300+ CHEM electives for two

required elective courses. Is this enough for students to explore their interests?
3) Comparing the proposed BS checksheet with the current checksheet, it seems there are four additional Biology courses, and two additional Chemistry courses (the electives). Is there a reason for this additional emphasis on Biology? How does this compare with other BS programs? Has the Chair of Biology been consulted on possible changes in course need in our department if enrollment in the program grows?
4) Graduate schools and some BS level jobs look for non-class lab experience. Does the physical sciences dept have enough research-active faculty and/or contacts with industry to provide this experience?
No Support 1) I think that having a BS in Biochemistry is an extremely good idea. However, the proposal has several problems in my estimation.
1) Over the past 16 years, there have only been 20 Biochemistry graduates. This is not enough bodies to support two Bachelor's degree programs (BA and BS). The size of the Biochemistry cohorts are competing institutions is irrelevant.
2) The Chemistry requirements for the BS are insufficient: a. Instrumental should be required b. One semester of P. Chem. without a lab is not enough for a Chemistry BS major. It is barely enough for a minor at many institutions
3) The degree is far too parasitic on Biotechnology. Many (if not most) of the elective courses that these students take will be in Biotechnology. I see this as an attempt to essentially reproduce an existing program under a new code.
No Support 2) This proposal would be much stronger if the BA were eliminated. (There is not enough difference between the two degrees and not enough students to drive them both). And, if the Chemistry requirements were increased to fall in line with programs at other institutions. This would also reduce the reliance of the Biochemistry BS upon the existing Biotechnology program.
No Support 3) A broader experience in P-Chem would be consistent with Biochemistry BS degrees from other institutions, and would help distinguish this new program from the current Biotechnology program.
No Support 4) The Biochem proposal appears to lack the necessary course depth and diversity typically associated with a BS degree. For Example, the program would be strengthened with the following additions: A year of Physical chemistry with a lab, a course in instrumental analysis and a more elective courses.)
No Support 5) No to Biochem for all reasons given. Too close to biotech and too few students in now two different majors. 1. This degree should certainly include a lab with Physical Chemistry, and 2 semesters with lab generally are required with a biochemistry B.S. 2. Instrumental analysis course should be required, using the great facility we have. 3. This degree differs from the B.A. only by adding a semester of Calculus, Quantitative Analysis, a Special Studies course and 2 Biotechnology courses. 4. Degree Outcomes list modern foundational knowledge in Microbiology, but curriculum does not include any microbiology course.Biochem -
No Support 6) - Not enough faculty; - Not enough P Chem; - Not distinct enough from Biotech
No Support 7) Even though I know many of my reasons for not supporting this proposal have been stated by other biology faculty, I would like add my response to the form B consultation. 1. Insufficient Physical Chemistry coursework. The proposed BS biochemistry program only includes one semester of physical chemistry,

with no laboratory component. Because biochemistry programs traditionally contain a greater physics and mathematics focus than molecular biology programs, physical chemistry is an essential part of a strong biochemistry curriculum. One semester of physical chemistry without a laboratory is insufficient preparation for biochemistry students and falls short of that included in BS biochemistry programs at other four year institutions in Michigan. I quickly looked at the curricula for BS biochemistry programs at 11 other institutions in the state of Michigan and found that 7 required a semester of Physical Chemistry with lab, 1 required a year of physical chemistry with lab, and 3 required a year of Physical Chemistry with one semester of lab. None of these programs required only one semester of physical chemistry without lab. In addition, the accreditation requirements for ACS-certified biochemistry programs (long considered the gold standard for chemistry and biochemistry programs) states that a year-long sequence of physical chemistry with a sufficient laboratory component is strongly suggested. The physical sciences department needs to address their lack of sufficient physical chemistry coursework (with lab) before opening a BS biochemistry program. 2. Significant overlap with the BS biotechnology program. The proposal states that the proposed BS biochemistry program distinguishes itself from the BS biotechnology program (and other programs) by focusing and expanding on math, biology, and chemistry requirements. This is a false statement. When comparing the proposed BS Biochemistry program to the existing BA Biochemistry program, there are only seven major math/science curricular differences: MATH 230, CHEM 231, CHEM 497 (research credits), 2 BIOL 300+ electives, 2 CHEM 300+ electives, BIOL 470, and BIOL 474. BIOL 470 and BIOL 474 are both upper-level biotechnology courses. It is also expected that due to the inherent similarities in career goals between biochemistry and biotechnology students, BS biochemistry students will most likely fill their BIOL 300+ elective requirements with upper-level biotechnology courses. This would result in a large fraction of the new requirements for the BS biochemistry program being composed of courses from the biotechnology program. The creation of a new program should be based upon the recombination of existing courses from a variety of subject areas and the creation of new courses. A new program should not be created by simply co-opting large blocks of courses from similar, existing programs.
No Support 8) I believe a strong BS biochemistry program would be a great addition to our current set of natural science bachelors programs in the College of Arts and Sciences. Unfortunately, I don't believe that this program (as proposed) is independently strong enough to sufficiently prepare students for a career in a biochemistry-related field.

Responding Department: Biology

Administrator: Scott Herron **Date Received:** 01/18/2017 **Date Returned:** 01/27/2017

Signature: 

Hello everyone – I would also vote not to support-
- A broader experience in P-Chem would be consistent with Biochemistry BS degrees from other institutions, and would help distinguish this new program from the current Biotechnology program.

Biochem - Do Not Support
- Not enough faculty
- Not enough P Chem
- Not distinct enough from Biotech

No on Biochem proposal:

1. This degree should certainly include a lab with Physical Chemistry, and 2 semesters with lab generally are required with a biochemistry B.S.

2. Instrumental analysis course should be required, using the great facility we have.

3. This degree differs from the B.A. only by adding a semester of Calculus, Quantitative Analysis, a Special Studies course and 2 Biotechnology courses.

4. Degree Outcomes list modern foundational knowledge in Microbiology, but curriculum does not include any microbiology course.

Biochem: No

The Biochem proposal appears to lack the necessary course depth and diversity typically associated with a BS degree. (For Example, the program would be strengthened with the following additions: A year of Physical chemistry with a lab, a course in instrumental analysis and a more elective courses.)

I have been informed that I must attach a rationale for my NO vote.

I think that having a BS in Biochemistry is an extremely good idea. However, the proposal has several problems in my estimation.

1) Over the past 16 years, there have only been 20 Biochemistry graduates. This is not enough bodies to support two Bachelor's degree programs (BA and BS). The size of the Biochemistry cohorts are competing institutions is irrelevant.
2) The Chemistry requirements for the BS are insufficient:
    a. Instrumental should be *required*
    b. One semester of P. Chem. without a lab is not enough for a Chemistry BS major. It is barely enough for a minor at many institutions
3) The degree is far too parasitic on Biotechnology. Many (if not most) of the elective courses that these students take will be in Biotechnology. I see this as an attempt to essentially reproduce an existing program under a new code.

This proposal would be much stronger if the BA were eliminated. (There is not enough difference between the two degrees and not enough students to drive them both). And, if the Chemistry requirements were increased to fall in line with programs at other institutions. This would also reduce the reliance of the Biochemistry BS upon the existing Biotechnology program.

No to Biochem for all reasons given. Too close to biotech and too few students in now two different majors.

I vote to **not support** the BS biochemistry proposal.

Even though I know many of my reasons for not supporting this proposal have been stated by other biology faculty, I would like add my response to the form B consultation.

1. **Insufficient Physical Chemistry coursework**. The proposed BS biochemistry program only includes one semester of physical chemistry, with **no** laboratory component. Because biochemistry programs traditionally contain a greater physics and mathematics focus than molecular biology programs, physical chemistry is an essential part of a strong biochemistry curriculum. One semester of physical chemistry without a laboratory is insufficient preparation for biochemistry students and falls short of that included in BS biochemistry programs at other four year institutions in Michigan. I quickly looked at the curricula for BS biochemistry programs at 11 other institutions in the state of Michigan and found that 7 required a semester of Physical Chemistry with lab, 1 required a year of physical chemistry with lab, and 3 required a year of Physical Chemistry with one semester of lab. None of these programs required only one semester of physical chemistry without lab. In addition, the accreditation requirements for ACS-certified biochemistry programs (long considered the gold standard for chemistry and biochemistry programs) states that a year-long sequence of physical chemistry with a sufficient laboratory component is strongly suggested. The physical sciences department needs to address their lack of sufficient physical chemistry coursework (with lab) before opening a BS biochemistry program.
2. **Significant overlap with the BS biotechnology program**. The proposal states that the proposed BS biochemistry program distinguishes itself from the BS biotechnology program (and other programs) by focusing and expanding on math, biology, and chemistry requirements. This is a false statement. When comparing the proposed BS Biochemistry program to the existing BA Biochemistry program, there are only seven major math/science curricular differences: MATH 230, CHEM 231, CHEM 497 (research credits), 2 BIOL 300+ electives, 2 CHEM 300+ electives, BIOL 470, and BIOL 474. BIOL 470 and BIOL 474 are both upper-level biotechnology courses. It is also expected that due to the inherent similarities in career goals between biochemistry and biotechnology students, BS biochemistry students will most likely fill their BIOL 300+ elective requirements with upper-level biotechnology courses. This would result in a large fraction of the new requirements for the BS biochemistry program being composed of courses from the biotechnology program. The creation of a new program should be based upon the recombination of existing courses from a variety of subject areas and the creation of new courses. A new program should not be created by simply co-opting large blocks of courses from similar, existing programs.

I believe a strong BS biochemistry program would be a great addition to our current set of natural science bachelors programs in the College of Arts and Sciences. Unfortunately, I don't believe that this program (as proposed) is independently strong enough to sufficiently prepare students for a career in a biochemistry-related field.

My vote is currently Support with Concerns, which are below along with some questions. I am open to changing my vote and to discussing the proposal with the physical sciences faculty and the proposal initiator. I agree that a BS in Biochemistry will make students more competitive and support the overall goal of the proposal.

1) Though our chair informs me that the number of Biochem majors is currently small, if the major grows (as would seem desireable) then the several new biology classes that were not in the Biochem BA degree (BIOL 470 and 474) would see increased enrollment. Knowing the exact number of current Biochem majors would help us gauge this impact. Brad Isler teaches these, and I suggest he be consulted on how this may impact his classes. These courses are only offered every other year, and if students cannot take it at the suggested time this may delay graduation or force a course substitution.

2) I quickly searched the catalog and only saw four 300+ CHEM electives for two required elective courses. Is this enough for students to explore their interests?

3) Comparing the proposed BS checksheet with the current checksheet, it seems there are four additional Biology courses, and two additional Chemistry courses (the electives). Is there a reason for this additional emphasis on Biology? How does this compare with other BS programs? Has the Chair of Biology been consulted on possible changes in course need in our department if enrollment in the program grows?

4) Graduate schools and some BS level jobs look for non-class lab experience. Does the physical sciences dept have enough research-active faculty and/or contacts with industry to provide this experience?

Response to Curricular Consultations

After consultation with the Physical Sciences curriculum committee and the department in general a number of changes were made to this proposal. A number of minor typos such as font size, spelling, checked boxes, have been corrected. In addition the first of the Degree Outcomes has been improved by removing a list of specific disciplines that support the biochemistry degree. On advice from committee members the number of hours has been changed to 120 from 121 as described below.

The two biology electives in the check sheet have been dropped and replaced with unrestricted "free" electives to a minimum of 120 hrs. reflecting the original intention of being able to count transferred biology courses that were not included in the requirements. Also, though both BIOL 470 and BIOL 474 are excellent courses that would enhance a biochemistry degree both are not necessary. As they are only offered every other year we limited the requirement to one course. Students could take either course to fulfill their upper level biology requirement. To replace these hours in the program we added more elective choices. Students could choose between a third CHEM 310+ or a second MATH 200+. Check sheets and supporting information have been adjusted to reflect these changes.

Some of the concerns expressed by Biological Sciences were addressed by these actions. First, the extent of overlap between the biochemistry BA, biochemistry BS and biotechnology BS is outlined in Table 1 (attached). While the original proposal only included two lecture courses designated as biotechnology courses the revision has lowered that to one. As indicated only 14 or 15 hours of biology is now required as compared to 43-51 hours required for the biotechnology degree. Students graduating with a BS in Biochemistry will have a considerably different background and skill set from those graduating in Biotechnology. As for the biochemistry BA, significantly more chemistry and math courses are part of the BS degree.

The second concern, that the degree should have two semesters of physical chemistry with labs to be considered a BS degree, is addressed by Table 2. This is a summary of physical chemistry and biology hours required for biochemistry BS degrees from a sampling of universities. Some do indeed require two semesters with lab but some require as little as a three hour course in Biophysical Chemistry with no lab. In addition, the entire requirement list for the American Chemical Society-certified *Bachelor of Science Degree in Chemistry with Biochemistry Emphasis* from Hope College has been included for comparison (Supplement I). Our degree requirements fall well within the spectrum of these examples. Also, instrumental analysis courses are not typically required for these degrees but it is one of the courses available for the chemistry electives.

A third concern was the retention of the BA degree. It is our opinion that there is no real reason to eliminate this program. Even if the enrollment it low there are no increased costs associated with maintaining the BA as an option for students who wish to have a science degree but also wish to pursue a less technology-oriented career. BA students are qualified to work in a lab but can choose a minor to complement any number of career paths from science writing to patent law.

A biology faculty member suggested there is insufficient faculty to offer this degree. There are sufficient resources in Physical Sciences to handle the expected growth in physical science offerings. No issues were raised in discussions with the biological sciences department head prior to submitting the original proposal so it was assumed there were no faculty issues in Biological Sciences. Since BIOL 121, 122, and 375 serve large and diverse audiences the only concern could be with BIOL 470 and BIOL 474 which have caps of 24, are offered every other year, and typically have enrollments of 8-16 students. It seems unlikely that the requirements of the new biochemistry degree would unduly burden their resources. This degree was designed to augment Ferris degree offerings not to compete with Biotechnology. Students could choose the biotechnology degree for more biotechnology/biology specific laboratory experiences. Students with a preference for the enhanced chemistry, math, and physics requirements could choose biochemistry.

Paula L Hadley-Kennedy

From: Kim K Colvert
Sent: Monday, March 20, 2017 1:42 PM
To: Paula L Hadley-Kennedy; Mary E Zimmer
Subject: FW: Proposal 17-078
Attachments: Form B from Biology for Biochemistry BS Proposal.pdf; Response.docx

Hope you can follow this. I am including your Form B and my response separately.

From: Olukemi O Fadayomi
Sent: Monday, March 20, 2017 11:17 AM
To: Kim K Colvert <KimColvert@ferris.edu>
Subject: RE: Proposal 17-078

Hi Kim,

Thanks for the feedback. I would recommend you email the response to Form B separately to Beth and copy Paula so she can share it with UCC. Hopefully, Biology can change their vote with the new updates to your proposal.

As for the college committee's response, Mark or Gayle should be able to provide some guidance. Let me know if I can help in any way.

Kemi

From: Kim K Colvert
Sent: Monday, March 20, 2017 9:40 AM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Subject: RE: Proposal 17-078

Okay, I can see where the issue arose. The response was included with the proposal which was given to the department representative at the college committee level. The college amended it to the proposal. I have sent full copies of the proposal with the response to both Beth and Paula, should I separate the response out and resend?

As for the college committees response, I still don't know how I can facilitate that. I'll talk to Mark. My understanding was that there was a majority vote of support but I could be wrong. I do not have the concerns of the committee in writing so I do not have specifics for a written response from me. I did attend the meeting and addressed concerns with the committee orally. I'll keep on it.

Thanks,

Kim

From: Olukemi O Fadayomi
Sent: Friday, March 17, 2017 5:52 PM
To: Kim K Colvert <KimColvert@ferris.edu>
Cc: Mark A Thomson <MarkThomson@ferris.edu>
Subject: RE: Proposal 17-078

Hi Kim,

Per UCC manual p 33 (see copy below), UCC asks that you respond in writing to the biology department concerns.

In the event of a response of "support with the modifications and concerns listed below" or "do not support the proposal for the reasons listed below," the Initiator must respond to the concerns in writing to the stakeholder. A copy of this correspondence must be sent to the Academic Senate Office to be added at the end of the proposal. P. 33

Regarding the college level response, UCC requires the reason for voting "support with concern" and proposal initiator's response. The instruction which is copied in part below can be found on pages 26 and 27 of the UCC manual.

Any concerns expressed at this level must be in writing and responded to in writing by the Initiator. This dialogue is attached to the proposal for succeeding units. Typically, a majority vote of "Support" is sufficient to advance a proposal. P. 26

In the case of "Support with Concerns" or "Not Support," any concerns must be expressed in writing to the Initiator and the dialogue including the Initiator's response is added to the proposal. P. 27

As a practice, UCC does not prescribe to the college curriculum committee how to provide feedback to proposal initiators while the proposal is still at the college. We leave that process to each college to decide. The chair of the college curriculum committee or the Dean's office may be able to provide that information.

You ask for the specific information that UCC need.

We need the following to resume our review of your proposal:

1. Evidence of written response to Biology department.

2. Reason for the college vote of "support with concern" and proposal initiator's response.

Please let me know if you need additional information from me. You may also call me at X-5618 if you think it will be helpful.

Kemi
Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

From: Kim K Colvert
Sent: Friday, March 17, 2017 2:29 PM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Cc: Mark A Thomson <MarkThomson@ferris.edu>
Subject: RE: Proposal 17-078

Kemi,

I am having difficulty understanding exactly what you think I should do. As per the UCC manual the concerns of the Biol. Department were addressed in written form, added to the proposal which was given to the College curriculum committee, including the Biology departmental representative. I attended the meeting where the proposal was discussed. I don't think I have any further information to submit and, as the college level support is not something I can address, I am at something of a loss. Perhaps I misunderstood the directions. What specific information does the UCC need?

Thank you. I hope to hear from you about what specific actions you think I need to take.

Kim

From: Olukemi O Fadayomi
Sent: Thursday, March 16, 2017 4:03 PM
To: Kim K Colvert <KimColvert@ferris.edu>
Cc: Paula L Hadley-Kennedy <PaulaHadley-Kennedy@ferris.edu>
Subject: Proposal 17-078

Hi Kim,

UCC reviewed your proposal to create A Bachelor of Science Degree in Biochemistry, Proposal 17-078 on Wednesday, March 15, 2017 and we are holding it for the following reasons:

- There is no indication that the response to Biology department concerns was shared with the department.
- The rationale for college level support with concern vote is missing from the proposal.

With the overwhelming lack of support and written concerns from Biology department, UCC recommends that you contact the Biology department with the changes made to the proposal and work out a possible resolution to their concerns.

If you can provide the requested information before our March 22 meeting, UCC will be able to complete its revision in time for the Academic Senate package that will go out on March 26. Please send your response directly to Paula in the Academic Senate Office.

Please contact me if you need further assistance.

Kemi
Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University

Form C
Effective Fall 2016

FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. FLITE must return the original form to the Academic Senate office to be inserted in the proposal and a copy to the initiator. FLITE must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.

RE: Proposal Title: Bachelor of Science Degree in Biochemistry

Projected number of students per year affected by proposed change: 8

Initiator(s): Konara Y. Kollalpitiya, Kim K. Colvert

Proposal Contact: Kim K. Colvert Date Sent: 01/18/17

Department: Physical Sciences **Campus Address:** 820 Campus Drive, ASC 3021
(Please type)

Liaison Librarian Signature: Kristen L Mott **Date Received: 1/18/2017** 1/20/17

Dean of FLITE Signature: [signature] **Date Returned:** 1/24/17

Based upon our review on (date), FLITE concludes that:

- ☒ Library resources to support the proposed curriculum change are currently available.
- ☐ Additional Library resources are needed but can be obtained from current funds.
- ☐ Support, but significant additional Library funds/resources are required in the amount of $ Click here to enter text..
- ☐ Does not support the proposal for reasons listed below.

Comment regarding the impact this proposal will have on library resources, collection development, or other FLITE programs. Use additional pages if necessary.

Biochemistry - Bachelor of Science - 120 Credits

Student Name: _____ **Student CWID:** _____

ADMISSION REQUIREMENTS

New Students

- First year student admission is open to high school graduates (or equivalent) who demonstrate appropriate academic preparedness, maturity and seriousness of purpose. High school courses and grade point average, ACT composite score, and ACT Mathematics and Reading sub scores will be considered in the admission and course placement process.

Transfer Students

- Transfer students must have at least 12 credits at the time of application with a minimum of 2.0 overall GPA including an English and Math course or they will be considered as first year students.

UNIVERSITY GENERAL EDUCATION REQUIREMENTS				
Required		Course Title (Prerequisites shown in parenthesis)		Crs
TIER 1: FOUNDATION COMPETENCIES				
COMMUNICATION COMPETENCY – 12 Credits Required (or their equivalent)				
COMM	105 or 121 or 221	Interpersonal Communication Fundamentals of Public Speaking Small Group Decision Making	F. Sp, Su F, Sp, Su F, Sp, Su	3
ENGL	150	**English 1** (SAT 370 OR ACT 14 OR ENGL 074 with C- or better)		3
ENGL	250	**English 2** (C- in ENGL 150)		3
ENGL	311 or 321 or 323 or 325	Advanced Technical Writing Advanced Composition Proposal Writing Advanced Business Writing	(C in ENGL 250 or C in ENGL 211) (C in ENGL 250 or C in ENGL 211) (C in ENGL 250 or C in ENGL 211) (C in ENGL 250 or C in ENGL 211)	3
QUANTITATIVE LITERACY COMPETENCY – 3 Credits Required				
MATH		This requirement is achieved in the program major		
TIER 2: DISTRIBUTION COMPETENCIES				
NATURAL SCIENCES COMPETENCY – minimum 6 Credits Required; at least one must be a class with a lab				
		This requirement is achieved in the program major		
			Lab class	
CULTURE COMPETENCY – 9 Credits Required *; Courses in this category must come from two different disciplines				
		Elective		
		Elective		
		Elective (200+)		
SELF AND SOCIETY COMPETENCY – 9 Credits Required *; Courses in this category must come from two different disciplines				
		Elective		
		Elective Foundation		
		Elective (200+)		
TIER 3: FOUNDATION COMPETENCIES				
COLLABORATION COMPETENCY – 2 courses Required **				
		Should be met by courses identified in the major. Here list the courses from the major identified for Collaboration		
PROBLEM SOLVING COMPETENCY – 2 courses Required **				
		Should be met by courses identified in the major. Here list the courses from the major identified for Problem Solving		

Freshman Seminar Requirement, FSUS 100, or is satisfied by: _____

* General Education Requirements - |"Diversity (both Global and U.S. Diversity)"and "Self and Society Foundation" requirements must be met either through Culture or Self and Society or other courses | must have a 200 level course in both Culture and Self and Society Courses. | The Self and Society Foundation course can be your 200+ course.

** Some courses include both Collaboration and Problem Solving attributes

Biochemistry - Bachelor of Science - 120 Credits

Required		Course Title (Prerequisites shown in parenthesis)	Crs	Gr
MAJOR REQUIREMENTS – 81 Credits Required (these courses ARE used in the core GPA requirement)				
BIOL	121	General Biology 1 (CHEM 121 co-requisite) F, Sp, Su	4	
BIOL	122	General Biology 2 (CHEM 121, BIOL 122) F, Sp, Su	4	
BIOL	375	Principles of Genetics (BIOL 122) F, Sp, Su	3	
BIOL	470 Or 474	Molecular Genetics (BIOL 375, CHEM 364) Sp, even years Advanced Cell-Molecular Biology (BIOL 375, CHEM 364) Sp, odd years	4 Or 3	
CHEM	121	General Chemistry 1 (Prior Chemistry and MATH 115) F, Sp, Su	5	
CHEM	122	General Chemistry 2 (CHEM 121, MATH 115) Sp, Su	5	
CHEM	321	Organic Chemistry 1 (CHEM 122) F, Su	5	
CHEM	322	Organic Chemistry 2 (CHEM 321) Sp, Su	5	
CHEM	231	Quantitative Analysis (CHEM 122) F	4	
CHEM	332	Biochemistry Lab 1 (CHEM 322, co – CHEM 364) F	2	
CHEM	333	Biochemistry Lab 2 (CHEM 332) Sp	2	
CHEM	364	Biochemistry (CHEM 322) F	4	
CHEM	451	Intro to Physical Chemistry (CHEM 322, Phys 212 or 242,MATH 220) Sp	4	
CHEM	474	Advanced Biochemistry (CHEM 364, BIOL 375, CHEM 231 or 451) Sp	3	
CHEM		Elective 310 +	3	
CHEM		Elective 310 +	3	
CHEM OR MATH		Elective 310 + Elective 200+	3	
MATH	220	Analytical Geometry and Calculus 1 (MATH 126 or MATH 130 or by placement) F, Sp, Su	4	
MATH	230	Analytical Geometry and Calculus 2 (MATH 220) F, Sp, Su	4	
MATH		Elective 200+	3	
Choose one PHYS sequence:	211 212 OR 241 242	Introductory Physics 1 and (MATH 116 or MATH 120 or by placement) F, Sp, Su Introductory Physics 2 (PHYS 211) F, Sp, Su General Physics 1 and (MATH 220) F General Physics 2 (MATH 230 and PHYS 241) Sp	4 4 5 5	
ADDITIONAL REQUIREMENTS – 3 Credits Required (these courses ARE NOT used to calculate the major GPA requirement)				
CHEM	497	Independent Study or equivalent experience	3	
Electives		To 120 hr. minimum		

ADDITIONAL GRADUATION REQUIREMENTS

- Minimum 2.0 minimum CUMULATIVE grade average in all courses.
- No grade lower than a "C" in course work required for the major
- 120 Minimum semester credits including general education requirements
- Residency requirement: 30 minimum FSU semester credits
- Minimum of 40 credits numbered 300 or higher (excluding community college credits)
- Students may not earn the BS BIOC degree in conjunction with any of the following degrees: AS ICT, BA CHEM, BA BIOC, BS Industrial CHEM, BS BIOT)

Biochemistry - Bachelor of Science - 120 Credits

DEGREE OUTCOMES (the outcomes will be used in TracDAT)	
Before Graduating with a BS Biochemistry degree from Ferris, a student will:	
1.	Identify the modern foundational knowledge underlying biochemistry and its relationship to other scientific disciplines.
2.	Perform basic laboratory techniques used in biochemistry research.
3.	Design, perform, and quantitatively/qualitatively evaluate the results of laboratory experiments.
4.	Locate, retrieve, and evaluate scientific information, especially including primary literature, with regards to its adequacy, value, and logic.
5.	Prepare oral and written reports in standard scientific formats.

Program Assessment Plan
Bachelor of Science in Biochemistry

Program Learning Outcomes	Assessment Methods
1. Students will identify the modern foundational knowledge underlying biochemistry and its relationship to other scientific disciplines.	Course assignments and exams, some of which include exams with national averages. Capstone course evaluation.
2. Students will perform basic laboratory techniques used in biochemistry research.	Lab participation evaluations, exams.
3. Students will design, perform, and quantitatively/qualitatively evaluate the results of laboratory experiments.	Lab reports, lab notebooks, presentations. Evaluation of independent study directors.
4. Students will locate, retrieve, and evaluate scientific information, especially including primary literature, with regards to its adequacy, value, and logic	Course assignments, exams, presentations. Capstone course assessment of literature use and critique.
5. Students will prepare oral and written reports in standard scientific formats	Lab reports, oral presentations, research papers.

Sample Plan for Completion of Biochemistry Bachelor of Science

First Year

Fall Semester		Spring Semester	
CHEM 121	5	CHEM 122	5
BIOL 121	4	BIOL 122	4
ENGL 150	3	MATH 230	4
MATH 220	4	COMM 105/121	3
FSUS 100	1		
	17		16

Second Year

Fall Semester		Spring Semester	
CHEM 321	5	CHEM 322	5
CHEM 231	4	PHYS 212 or 242	4/5
PHYS 211 or 241	4/5	MATH elective 200+	3/4
ENGL 250	3	Cul. Enr.	3
	16/17		15/17

Third Year

Fall Semester		Spring Semester	
CHEM 364	4	CHEM 451	4
CHEM 332	2	CHEM 333	2
BIOL 375	3	CHEM elective 310 +	3/4
ENGL elec.(300+)	3	elective	3+
Soc. Awar. Or Cul. Enr.	3	Soc. Awar. Or Cul. Enr.	3
	15		15/16+

Fourth Year

Fall Semester		Spring Semester	
CHEM elective 310 +	3/4	CHEM elective 310+	3/4
elective	3+	CHEM 474	3
CHEM 497 or equiv.	3	BIOL 474 or 470	4/3
Soc. Awar. Or Cul. Enr.	3	Soc. Awar. Or Cul. Enr.	3
Soc. Awar.	3		
	15		13/14

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: ***Existing course, unchanged. No previous EF form available.***

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II. COURSE IDENTIFICATION: CHEM 332 Biochemistry Lab 1

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
CHEM	332	5	1	4								
Title: Click here to enter text.							Title: Click here to enter text.					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
2		CHEM 322 with a grade of D- or better		CHEM 364								
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
Laboratory theory and techniques of biochemistry are introduced. Experiments focus on the application of photometry, chromatography, electrophoresis and activity assays to the isolation and analysis of biomolecules such as amino acids, proteins, enzymes and nucleic acids.							Click here to enter text.					
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
1. Use basic biochemical techniques and equipment. 2. Work neatly and efficiently in lab with respect for others. 3. Use a lab notebook to keep accurate and useful records of laboratory activities. 4. Prepare clear and concise reports of activities that explain the theories of techniques and concepts encountered, describe the experimental process, and use theories to explain experimental results, account for deviations, summarize and propose alternate or future experimentation. Assessment: Instructor observation, notebooks, reports, final exam.							Click here to enter text.					
Course Outline including Time Allocation							Course Outline including Time Allocation					
Introduction Lecture, Lab Tour, Safety 1 week Writing and Research Assignment 1 week							Click here to enter text.					

Buffers	1 week		
Spectrophotometry	1 week		
Centrifugation	1 week		
Proteins from Milk,Electrophoresis	2 week		
Chromatography I	1 week		
Chromatography II	2 weeks		
Enzyme kinetics	2 weeks		
Bioinformatics	1 weeks		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS—College of Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 2

F. Maximum Credit Hours: 2

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: Click here to enter text.

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:* Click here to enter text.

   Course Prefix, Number – Course Title

K. Term(s) Offered: Fall

L. Max Section Enrollment:
   Lecture: 16
   Lab: 16

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐*SCACRSE,* ☐*SCADETL,* ☐*SCARRES,* ☐*SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: ***Existing course, unchanged. No previous EF form available.***

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201709

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: CHEM 333 Biochemistry Lab 2

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT						PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar	Prefix	Number	Contact Hours	Lecture	Lab	Seminar
CHEM	333	5	1	4							
Title: Click here to enter text.						Title: Click here to enter text.					
Credit Hours	Prerequisites	Co-requisites				Credit Hours	Prerequisites	Co-requisites			
2	CHEM 332 and 364, D- or better										
Course/Catalog Description *(125 words)*						Course/Catalog Description *(125 words)*					
Biochemistry laboratory techniques and theory are continued. Experiments will include the isolation of sub-cellular systems such as chloroplasts, mitochondria and microsomes. The metabolic properties of these systems, including chemiosmotic coupling, electron transport and substrate preference will be examined.						Click here to enter text.					
Course Outcomes and Assessment Plan						Course Outcomes and Assessment Plan					
1. Apply basic biochemical techniques and equipment to more complex systems. 2. Work neatly and efficiently in lab with respect for others. 3. Use a lab notebook to keep accurate and useful records of laboratory activities. 4. Use theories to explain experimental observations in appropriate scientific language and format. Assessment: Instructor observation, notebooks, reports, final exam.						Click here to enter text.					
Course Outline including Time Allocation						Course Outline including Time Allocation					
Report Writing 1 week Solutions Preparation 1 week Amylase Activity, Western Blot 3 week Protein Crystallization 2 week Photosynthetic Pigments 1 week						Click here to enter text.					

Photosynthesis Assays	3 week		
Mitochondrial Electron Transport	2 week		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS—Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 2

F. Maximum Credit Hours: 2

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: Click here to enter text.

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:* Click here to enter text.

   Course Prefix, Number – Course Title

K. Term(s) Offered: Spring

L. Max Section Enrollment:
   Lecture: 15
   Lab: 16

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

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*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐ *SCACRSE,* ☐ *SCADETL,* ☐ *SCARRES,* ☐ *SCAPREQ*

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: ***Existing course, unchanged. No previous EF form available.***

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: CHEM 474—Advanced Biochemistry

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT							PROPOSED						
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar	
CHEM	474	3	X										
Title: Click here to enter text.							Title: Click here to enter text.						
Credit Hours	Prerequisites		Co-requisites				Credit Hours	Prerequisites		Co-requisites			
3	CHEM 231 or 451; & CHEM 364 & BIOL 375, D- or better in each course												
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*						
Builds on the introduction to biochemistry presented in CHEM 364. Metabolism will be examined in greater detail, stressing mechanisms, regulation, and research implications. A significant component of the course is literature driven, requiring research analysis and discussion of current topics in biochemistry. This is the capstone course for the Biochemistry BA degree							Click here to enter text.						
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan						
1. Deepen specific understanding of anabolism and catabolism stressing regulation and interdependency of pathways. 2. Develop the ability to analyze and predict metabolic effects. 3. Increase awareness of biochemical literature. 4. Enhance skills in oral and written communication of scientific information. Assessment: Exams, journal article presentation (rubric), participation in literature discussions, research paper.							Click here to enter text.						

Course Outline including Time Allocation			Course Outline including Time Allocation
Review of Metabolism	1 hr		Click here to enter text.
Biosynthesis of amino acids	4		
The five families and histidine			
Amino acid analogs			
Metabolic fate of amino acids	5		
Review of catabolism and links to catabolic paths			
Synthesis of porphyrin, glutathione			
Neurotransmitters			
Nucleotide metabolism	6		
Anabolism, catabolism, regulation			
Biosynthesis of nucleotide coenzymes			
Photosynthesis	6		
Light reactions--photosystems and chlorophyll			
Dark reactions--CO2 to sugars			
Lipid Metabolism	5		
Fatty acid and phospholipid synthesis			
Cholesterol metabolism			
Cholesterol, lipoproteins, bile acids steroid hormones, vitamin D			
Special Techniques	4		
Literature Presentations	1 hr/student		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS—Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 4

F. Maximum Credit Hours: 4

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: Click here to enter text.

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No

☐ Yes – *If yes, enter equivalent course:* Click here to enter text.

Course Prefix, Number – Course Title

K. Term(s) Offered: Spring

L. Max Section Enrollment:
Lecture: 15
Lab: None

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐ *SCACRSE,* ☐ *SCADETL,* ☐ *SCARRES,* ☐ *SCAPREQ*

FINANCIAL AID FORM

FORM FIN
Effective Fall 2016

To be completed by the Director of Financial Aid (DFA). The DFA must return the original form to the Academic Senate Office to be inserted into the original proposal and a copy to the initiator (proposer). The DFA must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for this proposal.

Proposal Title: Bachelor of Science Degree in Biochemistry

Initiators: Konara Y. Kollaipitiya, Kim K. Colvert

Proposal Contact: Kim K. Colvert

Date Sent: 02/07/17

Department: Physical Sciences

Campus Address: 820 Campus Drive, ASC 3021

Director of Financial Aid Signature:

Date Returned: 3-3-2017

Please check all that apply:

☐ The new program is remedial as it prepares students for study at the postsecondary level. This program is not an eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is considered a preparatory program as it prepares a student for a given program, i.e., they do not meet the academic criteria to be admitted into the program. Student is only eligible for Federal Direct Loans for one year.

☐ The new program is a certificate program. Certificate programs are not eligible programs per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a teacher certification program where it provides coursework required for a professional State credential necessary for employment as an elementary or secondary school teacher, but for which the institution awards no academic credential. Students are eligible for Federal Direct Loans only at an undergraduate level.

☐ The new program is a teacher certification program that will award a certificate credential. Certificate programs are not eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a Bachelor Completion program; a two-year degree completion program that requires an associate degree or the successful completion of at least two years of college coursework as a prerequisite for admission. These are aid eligible programs and students may receive financial aid.

☐ The new program is a Master's, Professional, or Doctoral Degree/Major program that allows students to take some undergraduate courses where some deficiency exists. Please note, students are eligible to receive Federal loans for the program, but undergraduate courses will not be included in the total credit count to determine loan eligibility. Students must be half time (Graduate/Professional = 5 credits, Doctoral = 3 credits) in graduate level courses to receive Federal aid.

☑ The new program is an Associate's, Bachelor's, Master's, Professional, or Doctoral Degree/Major and is conferred upon graduation. Per Federal requirements, these are aid eligible programs and students may receive financial aid.

Please include the number of credit hours to earn the degree or credential being sought. This is required as it must be reported to the Department of Education as well as the National Student Loan Clearinghouse, regardless if students are receiving federal aid.

Credits Required to Earn Degree: 120

Response to Curricular Consultations

After consultation with the Physical Sciences curriculum committee and the department in general a number of changes were made to this proposal. A number of minor typos such as font size, spelling, checked boxes, have been corrected. In addition the first of the Degree Outcomes has been improved by removing a list of specific disciplines that support the biochemistry degree. On advice from committee members the number of hours has been changed to 120 from 121 as described below.

The two biology electives in the check sheet have been dropped and replaced with unrestricted "free" electives to a minimum of 120 hrs. reflecting the original intention of being able to count transferred biology courses that were not included in the requirements. Also, though both BIOL 470 and BIOL 474 are excellent courses that would enhance a biochemistry degree both are not necessary. As they are only offered every other year we limited the requirement to one course. Students could take either course to fulfill their upper level biology requirement. To replace these hours in the program we added more elective choices. Students could choose between a third CHEM 310+ or a second MATH 200+. Check sheets and supporting information have been adjusted to reflect these changes.

Some of the concerns expressed by Biological Sciences were addressed by these actions. First, the extent of overlap between the biochemistry BA, biochemistry BS and biotechnology BS is outlined in Table 1 (attached). While the original proposal only included two lecture courses designated as biotechnology courses the revision has lowered that to one. As indicated only 14 or 15 hours of biology is now required as compared to 43-51 hours required for the biotechnology degree. Students graduating with a BS in Biochemistry will have a considerably different background and skill set from those graduating in Biotechnology. As for the biochemistry BA, significantly more chemistry and math courses are part of the BS degree.

The second concern, that the degree should have two semesters of physical chemistry with labs to be considered a BS degree, is addressed by Table 2. This is a summary of physical chemistry and biology hours required for biochemistry BS degrees from a sampling of universities. Some do indeed require two semesters with lab but some require as little as a three hour course in Biophysical Chemistry with no lab. In addition, the entire requirement list for the American Chemical Society-certified *Bachelor of Science Degree in Chemistry with Biochemistry Emphasis* from Hope college has been included for comparison (Supplement I). Our degree requirements fall well within the spectrum of these examples. Also, instrumental analysis courses are not typically required for these degrees but it is one of the courses available for the chemistry electives.

A third concern was the retention of the BA degree. It is our opinion that there is no real reason to eliminate this program. Even if the enrollment it low there are no increased costs associated with maintaining the BA as an option for students who wish to have a science degree but also wish to pursue a less technology-oriented career. BA students are qualified to work in a lab but can choose a minor to complement any number of career paths from science writing to patent law.

A biology faculty member suggested there is insufficient faculty to offer this degree. There are sufficient resources in Physical Sciences to handle the expected growth in physical science offerings. No issues were raised in discussions with the biological sciences department head prior to submitting the original proposal so it was assumed there were no faculty issues in Biological Sciences. Since BIOL 121, 122, and 375 serve large and diverse audiences the only concern could be with BIOL 470 and BIOL 474 which have caps of 24, are offered every other year, and typically have enrollments of 8-16 students. It seems unlikely that the requirements of the new biochemistry degree would unduly burden their resources. This degree was designed to augment Ferris degree offerings not to compete with Biotechnology. Students could choose the biotechnology degree for more biotechnology/biology specific laboratory experiences. Students with a preference for the enhanced chemistry, math, and physics requirements could choose biochemistry.

Table 1. Comparison of Ferris Degrees

BA Biochemistry	BS Biochemistry	BS Biotechnology
CHEM 121 CHEM 122 CHEM 321 CHEM 322 CHEM 332 CHEM 333 CHEM 364 CHEM 451 CHEM 474 Hrs. 35	CHEM 121 CHEM 122 CHEM 231 CHEM 321 CHEM 322 CHEM 332 CHEM 333 CHEM 364 CHEM 451 CHEM 474 CHEM elective 310+ CHEM elective 310+ CHEM elective 310+ or MATH elective 200+ CHEM 497 or equiv Hrs. 51	CHEM 121 CHEM 122 CHEM 231 CHEM 321 CHEM 322 CHEM 332 CHEM 333 CHEM 364 CHEM 474 Hrs. 35
MATH 220 Hrs. 4	MATH 220 MATH 230 MATH elective 200+ Hrs. 11-12	MATH 220 MATH 251 Hr. 7
PHYS 211 or 241 PHYS 212 or 242 Hrs 8/10	PHYS 211 or 241 PHYS 212 or 242 Hrs 8/10	PHYS 211 Hrs 4
BIOL 121 BIOL 122 BIOL 375 Hrs. 11	BIOL 121 BIOL 122 BIOL 375 BIOL 470 or 474 Hrs. 14/15	BIOL 121 BIOL 122 BIOL 375 BIOL 386 BIOL 470 BIOL 471 BIOL 474 BIOL 476 BIOL 205 or 321/322 BIOL 491 Or 497 Or CHEM 497 Hrs. 43-51
BA core: additional COMM, foreign language requirement, minor		
	General Electives To 120 hrs	

Table 2. Physical Chemistry and Biology requirements for BS Biochem degrees from other universities.

School	PChem	lectue + lab hrs	Biol hrs.
U of Kansas:	PChem	3 + 0	21-22
Grand Valley:	PChem	3 + 1,	13-18
Central Michigan:	Biophysical Chemistry,	3 + 0	15
U of Michigan:	Biophysical Chemistry,	3 + 0	11-16
Michigan State: (No straight Biochem Degree Biochem and Mol Bio)			
	PChem	6 + 0 hr	13-19
Indiana:	PChem	7 + 2 hr	15
Ohio State: 6 hrs	Physical Biochemistry	6 + 0	12
Hope College: (ACS certified)	PChem	3 + 1,	11 hr BIOL

Supplement 1

Hope College http://www.hope.edu/catalog/current/chemistry/index.html

BACHELOR OF SCIENCE DEGREE

The B.S. degree in chemistry requires 36 credits of science major chemistry courses and a total of 60 credits in the natural sciences. A minimum GPA of 2.0 is required for all science- major chemistry courses in the degree. The B.S. degree must include the 32 credits of chemistry, 8 credits of physics and 8 credits of mathematics that are listed below.

- CHEM 125 – General Chem I, 3 credits
- CHEM 127 – Gen Chem Lab I, 1 credit
- CHEM 126 – General Chem II, 3 credits
- CHEM 128 – Gen Chem Lab II , 1 credit
- CHEM 221 – Organic Chem I , 3 credits
- CHEM 255 – Org Chem Lab I, 2 credits
- CHEM 231 – Organic Chem II. 3 credits
- CHEM 256A – Org Chem Lab II, 1 credit
- CHEM 322 – Inorganic Chem, 3 credits
- CHEM 331 – Analytical Chem. 3 credits
- CHEM 332 – Analytical Chem Lab. 1 credit
- CHEM 343 – Physical Chem I. 3 credits
- CHEM 345 – Phys Chem Lab I, 1 credit
- CHEM 344 – Physical Chem II, 3 credits
- CHEM 346 – Phys Chem Lab II, 1 credit *(see exclusion for biochemistry)*
- PHYS 121 – Gen Phys I
- PHYS 141 – Phys Lab I
- PHYS 122 – Gen Phys II
- PHYS 142 – Phys Lab II
- MATH 131 – Calc I (or Math 125 and Math 126)
- MATH 132 – Calc II

Strongly Recommended Courses:

MATH 231 – Multivariable Math I
MATH 232 – Multivariable Math II

Alternatively, CHEM 131 and 132, Accelerated General Chemistry and Accelerated General Chemistry Laboratory, may be substituted for the two-semester general chemistry sequence of CHEM 125 and 127, plus CHEM 126 and 128. Since the material covered in this accelerated one-semester general chemistry course is the same as the material covered in the two-semester sequence, credit for CHEM125 and 127 will be awarded upon successful completion of CHEM 131 and 132.

In addition to the courses listed above, a student must complete four other credits of 200-, 300- or 400- level lecture or laboratory courses for a total of 36 credits. Suggested courses are listed below:

- CHEM 256B – Organic Chemistry Lab II, 1 credits
- CHEM 347 – Chemical Modeling Lab, 1 credit
- CHEM 311 – Biochemistry I, 3 credits
- CHEM 348 – Advanced Spectroscopy Lab, 1 credit
- CHEM 314 – Biochemistry II, 3 credits
- CHEM 421 – Struct. Dynam. & Syn. I, 3 credits
- CHEM 315 – Biochem Lab, 1 credits
- CHEM 422 – Struct. Dynam. & Syn. II, 3 credits
- CHEM 324 – Inorganic Lab, 1 credit
- CHEM 490 – Research, 1-2 credits
- CHEM 335 – Neurochemistry, 4 credits

A.C.S. CERTIFIED BACHELOR OF SCIENCE DEGREE IN CHEMISTRY WITH BIOCHEMISTRY EMPHASIS

THE A.C.S.-CERTIFIED BACHELOR OF SCIENCE DEGREE IN CHEMISTRY WITH BIOCHEMISTRY EMPHASIS

Hope College also offers an A.C.S.-certified B.S. degree with biochemistry option if the following requirements are met in addition to the regular BS degree requirements listed above (with the exception that Physical Chemistry II lecture and lab are not required):

- CHEM 311 – Biochemistry I
- CHEM 314 – Biochemistry II
- CHEM 315 – Biochemistry Lab

Three credits of advanced biology, from among BIOL 335 (Neurochem), BIOL 348 (Cell Biology), BIOL 356 (Genetics) or BIOL 366 (Molecular Biology); these advanced biology courses have a prerequisite of the core courses in biology.

A student must also take at least one additional advanced lecture courses from the list below:

- CHEM 335 – Neurochemistry
- CHEM 344 – Physical Chemistry II
- CHEM 421 – Structure, Dynamics, Synth I
- CHEM 422 – Structure, Dynamics, Synth II

In addition to the lecture courses, an AC.S.-certified major requires that a student have more than 400 contact hours of laboratory experience beyond General Chemistry. Laboratory coursework must include analytical, biochemistry, organic and physical chemistry lab. Research experience may count for up to 84 hours if a student prepares a well-written, comprehensive and well-documented research report.

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Tuesday, February 28, 2017 11:26 AM
To: Paula L Hadley-Kennedy
Cc: Mark A Thomson
Subject: FW: FORM B Consultation concerns

Paula,

Would you please attach this email to Proposal 17-078 for UCC discussion? Thanks

Kemi
Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

From: Mark A Thomson
Sent: Monday, February 27, 2017 9:39 AM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Subject: RE: FORM B Consultation concerns

Kemi,
Yes. This is something I would like you to take to the UCC for discussion. It can either be done in the context of discussing the Biochemistry proposal or as a separate item at your discretion.

Thanks,
Mark

From: Mark A Thomson
Sent: Wednesday, February 15, 2017 11:35 AM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Cc: Gayle E Driggers <GayleDriggers@ferris.edu>; Carrie M Thompson <CarrieThompson@ferris.edu>; John Scott S Gray <JohnScottGray@ferris.edu>; Rebecca E Sammel <RebeccaSammel@ferris.edu>; Renato L Cerdena <RenatoCerdena@ferris.edu>; Scott M Herron <ScottHerron@ferris.edu>; Victor I Piercey <VictorPiercey@ferris.edu>; Amy L Carmack <AmyCarmack@ferris.edu>; Dave B Schrock <DaveSchrock@ferris.edu>; Joseph Lipar <JosephLipar@ferris.edu>; Mark A Thomson <MarkThomson@ferris.edu>
Subject: FORM B Consultation concerns

Kemi,
Yesterday the Arts and Sciences College Curriculum Committee discussed the curriculum proposal for a new BS Biochemistry degree which you now have for your review.

As our representative on the UCC, I feel obligated to express the following to you because it indicates to me a significant problem that needs to be addressed and could not be resolved at the college level in our committee yesterday.

The Biology Department response to the Curriculum Consultation Form (FORM B) went far beyond the stated purpose of the form which is to "Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary." The majority of the response is centered on course choice and/or availability with the Chemistry program in the Physical Sciences Department, something which would more appropriately be addressed within this program. Additionally, to refer to the new program as "parasitic" crosses the line of civil discourse between reasonable colleagues. The language comes across as condescending and disrespectful, especially in the context of its own inaccuracy as evidenced by Dr. Colvert in her reply.

The College Curriculum Committee also voiced strong concerns yesterday in more general terms in reference to FORM B consultations. When there is a consultation with "Do not support" or "Support with concerns" votes, the Initiator is obligated to address those concerns. Frequently (actually almost always), it seems that these replys are not directed back to the consulted department that raised those concerns, but instead, it is simply attached to the proposal and the proposal is sent on its way. This was discussed in committee but it was suggested that it might be of broad enough concern that it should be addressed at the UCC level.

Thank you for considering these issues,
Mark

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Monday, March 13, 2017 5:56 PM
To: Paula L Hadley-Kennedy
Subject: FW: BS Biochemistry proposal, Proposal 17-078

Please attach to Proposal 17-078. Thanks!

Kemi

From: Tracey D Boncher
Sent: Monday, March 13, 2017 12:20 PM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Subject: Re: BS Biochemistry proposal, Proposal 17-078

Yes I would personally support this degree/proposal. Most other schools offer degrees such as this and in order for us to also be competitive we should offer this as well. I do believe the rigor is good and probably on par with other programs from what I have seen. I am happy to elaborate for you further should you have any specific questions. Tracey

---

From: Olukemi O Fadayomi
Date: Friday, March 10, 2017 at 12:05 PM
To: Tracey D Boncher
Subject: BS Biochemistry proposal, Proposal 17-078

Hi Tracy,

UCC will be discussing a proposal to create a new degree – BS Biochemistry at our upcoming meeting on Wednesday. Given your expertise in biochemistry and your non- affiliation with the initiating college/department, I am asking for your professional and unbiased opinion of the rigor and merit of the proposal, which is attached to this mail. If at all possible, I would like your response by Tuesday, March 14. Thank you for considering my request on behalf of UCC.

Kemi

Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Thursday, March 16, 2017 4:03 PM
To: Kim K Colvert
Cc: Paula L Hadley-Kennedy
Subject: Proposal 17-078

Hi Kim,

UCC reviewed your proposal to create A Bachelor of Science Degree in Biochemistry, Proposal 17-078 on Wednesday, March 15, 2017 and we are holding it for the following reasons:

- There is no indication that the response to Biology department concerns was shared with the department.
- The rationale for college level support with concern vote is missing from the proposal.

With the overwhelming lack of support and written concerns from Biology department, UCC recommends that you contact the Biology department with the changes made to the proposal and work out a possible resolution to their concerns.

If you can provide the requested information before our March 22 meeting, UCC will be able to complete its revision in time for the Academic Senate package that will go out on March 26. Please send your response directly to Paula in the Academic Senate Office.

Please contact me if you need further assistance.

Kemi
Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

Paula L Hadley-Kennedy

From: Kim K Colvert
Sent: Friday, March 17, 2017 3:44 PM
To: Paula L Hadley-Kennedy
Subject: FW: Biochemistry BS degree proposal
Attachments: BS Biochemistry Proposal.pdf

I got this returned to me—the server didn't like how I spelled you name so I am forwarding it rather than resending. Sorry!

From: Kim K Colvert
Sent: Friday, March 17, 2017 3:40 PM
To: Mary E Zimmer <MaryZimmer@ferris.edu>; 'Paula' <Hadley-Kennedy@ferris.edu>
Subject: Biochemistry BS degree proposal

Beth and Paula:
I am sending you the proposal that was given to Scott and the rest of the College Curriculum Committee back in February in hopes that this will address concerns from Kemi and the UCC about my response to the Biology consultation form B. This is the proposal as submitted and contains a written response as an addition right after the Biology form B and before the Flite consultation form C. It is possible the response was repositioned in the Dean's office to be the last item in the packet before distribution to the CCC. I am not sure what else is needed but since Scott is out of town I thought I'd cover what bases I could before the weekend.

Thanks,
Kim

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Sunday, March 19, 2017 2:52 PM
To: Paula L Hadley-Kennedy
Subject: FW: Proposal 17-078

Please attach to proposal 17-078. Thanks

Kemi

From: Olukemi O Fadayomi
Sent: Friday, March 17, 2017 5:52 PM
To: Kim K Colvert <KimColvert@ferris.edu>
Cc: Mark A Thomson <MarkThomson@ferris.edu>
Subject: RE: Proposal 17-078

Hi Kim,

Per UCC manual p 33 (see copy below), UCC asks that you respond in writing to the biology department concerns.

In the event of a response of "support with the modifications and concerns listed below" or "do not support the proposal for the reasons listed below," the Initiator must respond to the concerns in writing to the stakeholder. A copy of this correspondence must be sent to the Academic Senate Office to be added at the end of the proposal. P. 33

Regarding the college level response, UCC requires the reason for voting "support with concern" and proposal initiator's response. The instruction which is copied in part below can be found on pages 26 and 27 of the UCC manual.

Any concerns expressed at this level must be in writing and responded to in writing by the Initiator. This dialogue is attached to the proposal for succeeding units. Typically, a majority vote of "Support" is sufficient to advance a proposal. P. 26

In the case of "Support with Concerns" or "Not Support," any concerns must be expressed in writing to the Initiator and the dialogue including the Initiator's response is added to the proposal. P. 27

As a practice, UCC does not prescribe to the college curriculum committee how to provide feedback to proposal initiators while the proposal is still at the college. We leave that process to each college to decide. The chair of the college curriculum committee or the Dean's office may be able to provide that information.

You ask for the specific information that UCC need.

We need the following to resume our review of your proposal:

1. Evidence of written response to Biology department.

2. Reason for the college vote of "support with concern" and proposal initiator's response.

Please let me know if you need additional information from me. You may also call me at X-5618 if you think it will be helpful.

Kemi
Olukemi Fadayomi, Ph. D

Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

From: Kim K Colvert
Sent: Friday, March 17, 2017 2:29 PM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Cc: Mark A Thomson <MarkThomson@ferris.edu>
Subject: RE: Proposal 17-078

Kemi,

I am having difficulty understanding exactly what you think I should do. As per the UCC manual the concerns of the Biol. Department were addressed in written form, added to the proposal which was given to the College curriculum committee, including the Biology departmental representative. I attended the meeting where the proposal was discussed. I don't think I have any further information to submit and, as the college level support is not something I can address, I am at something of a loss. Perhaps I misunderstood the directions. What specific information does the UCC need?

Thank you. I hope to hear from you about what specific actions you think I need to take.

Kim

From: Olukemi O Fadayomi
Sent: Thursday, March 16, 2017 4:03 PM
To: Kim K Colvert <KimColvert@ferris.edu>
Cc: Paula L Hadley-Kennedy <PaulaHadley-Kennedy@ferris.edu>
Subject: Proposal 17-078

Hi Kim,

UCC reviewed your proposal to create A Bachelor of Science Degree in Biochemistry, Proposal 17-078 on Wednesday, March 15, 2017 and we are holding it for the following reasons:

- There is no indication that the response to Biology department concerns was shared with the department.
- The rationale for college level support with concern vote is missing from the proposal.

With the overwhelming lack of support and written concerns from Biology department, UCC recommends that you contact the Biology department with the changes made to the proposal and work out a possible resolution to their concerns.

If you can provide the requested information before our March 22 meeting, UCC will be able to complete its revision in time for the Academic Senate package that will go out on March 26. Please send your response directly to Paula in the Academic Senate Office.

Please contact me if you need further assistance.

Kemi

Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

Paula L Hadley-Kennedy

From: Mark A Thomson
Sent: Monday, March 20, 2017 1:44 PM
To: Olukemi O Fadayomi; Kim K Colvert
Cc: Scott M Herron; Paula L Hadley-Kennedy; David V Frank
Subject: RE: Proposal 17-078
Attachments: 2017-2-14 Meeting Notes.docx; BS Biochemistry Proposal 17-078 CCC response.pdf; BC to CCC response.docx

Kemi,

I believe Kim has responded regarding point 1 in your e-mail of March 17. "1. Evidence of written response to Biology department." The written response to the Consultation was given to the Dean's Office with the proposal with the understanding that it would be transmitted to the Biology Department through their representative on the College Curriculum Committee.

In response to point 2 in your e-mail, "2. Reason for the college vote of "support with concern" and proposal initiator's response." I am attaching the minutes from the College Curriculum Meeting. The highlighted portion indicates the discussion. The "support with concerns" vote was by Scott Herron and he indicated at the time that he still maintained the concerns expressed in the FORM B consultation from his department. I have contacted Scott to follow up for a response in writing that the initiator can address. I will also attach his e-mail and her response.

I will be happy to attend the UCC meeting on Wednesday to discuss this with the committee as well as to address the concerns that our College Committee raised and that you attached to this proposal. Please let me know time and location.

Mark

CAS Curriculum Committee February 14, 2017 @ 11:00 am ASC-3052J

MEETING SUMMARY Approved: *02-23-2017*

CAS Curriculum Committee MEMBERS

Present Carrie Thompson, John Scott Gray, Mark Thomson (Chair), Rebecca Sammel, Renato Cerdena, Scott Herron, Victor Piercey
Non-Voting: Amy Carmack, Dave Schrock, Gayle Driggers, Joe Lipar

Absent

Recorder Gayle Driggers

GUESTS Kim Colvert

APPROVALS

- Minutes from 01-26-2017 meeting were approved, 7-0

AGENDA/Meeting Notes

- **Old Business**
  - Joe explained Dave Schrock's addition to our invite list. It was felt he could provide insight into the MyDegree side of proposed checksheets. It was decided he could give feedback to the CCC Chair, who could then share with the committee, but he can attend meetings as needed.
  - The minor corrections to the Natural Science AS were made and the proposal is now at the UCC level.
  - The minor corrections to the Sports Comm proposal were made and the proposal is at the UCC level.
- **New Business**
  - Biology BS – Pre-Optometry Concentration (MCC)
    - Brief overview was given of minor change to the program: remove CHEM 324 as an option
    - Following review and discussion motion made and seconded to approve the proposal once the following minor correction is made.
      - Correct typo on Gen Ed section making COMM 122 read COMM 121. Dave shared that COMM 105 will be hidden in background.

ACTION: Vote of 7-0 to approve, pending one minor correction

  - Biochemistry BS – New Program
    - Kim Colvert explained rationale behind the proposal and addressed written concerns from Biology. Questions regarding ability to support two Biochem programs, potential student numbers and growth of program all addressed.
    - Following review and discussion motion made and seconded to approve the proposal once the following minor corrections are made:
      - Clean up Gen Ed section of the proposed Form D, listing accepted COMM and 300 level ENGL courses. Also change Grad Requirement from 121 credits needed to 120 credits needed.

ACTION: Vote of 6-1-0 to approve, pending minor corrections. (the *support with concerns* vote is explained in detail and attached to the proposal, along with response to concerns)

  - SCWK 501 Course Deletion and Removal from MSW
    - Carrie explained rationale behind proposal – with internship semester moved from fall to spring there will be no need for SCWK 501 the summer before the semester begins.
    - Following discussion several corrections needed were pointed out and it was felt proposal should be revisited at next meeting. Motion to table.
      - Since SCWK 501 is pre-req for all Traditional Year required courses, those courses will need Fast Tract Forms submitted to remove pre-requisite of SCWK 501.
      - Remove SCWK 501 from the Semester by semester table for the Traditional Year.

ACTION: Vote of 7-0 to table the proposal until the next meeting

- BSW Change Course Outcomes proposal and Integrative Studies AA proposal - Due to lack of time these two proposals will be reviewed at the next meeting on 02-23-2017.

➢ **Roundtable Discussion**

- Scott shared that the Planning Committee has not yet decided on adding adjuncts to standing college committees.

➢ **Adjournment – 11:55 am**

To: Academic Senate

From: Kim Colvert

cc: Scott Herron, Mark A. Thomson

Date: 3/20/2017

Re: Response to CCC concerns

First, I would like to say that I attended the meeting of the College Curriculum Committee when this proposal was discussed. My impression from that meeting was that the biological sciences department representative's concerns were the only ones expressed in a vote and that they were the same as those in the consultation form. There was also some concern that the process had been violated.

I would like start with the process concerns. Nothing in my experience or anyone I asked suggested that the process followed was incorrect. A written response was generated as soon as the consultation form was returned. That response was appended to the proposal in the dean's office and the proposal was distributed to the CCC. Since a representative of the stakeholder was a part of that committee I assumed these actions discharged my obligations in this regard. I was unaware that there were any requirements to allow a responding department to re-examine a proposal before proceeding.

In the written response Dr. Herron challenges the viability of not only the new program but also the existing BA. I believe we proceed from different assumptions. I believe that part of our role as an institution is to provide students with options. If we can do so at a level commensurate with other institutions without overburdening our resources then I do not see why this is a bad thing. Perhaps there may be some competition among the BA Biochem, BS Biochem, BS Biotech, and BS ICT degrees and it is true that these are not heavily enrolled programs. I question the assumption that since we are talking about less than 20 graduates a year, including from the 28 year old Biotechnology program we should only have one option available for high caliber students in the College of Arts and Sciences. I was unaware that a recruiting plan had to be developed before a program exists. I think options might bring some of those students to Ferris and keep some from transferring if they find that one program is not suiting their interests.

I find the comment about removing one of the Biotechnology courses confusing. The original comments suggested there was too much overlap with Biotechnology. This was addressed. Now dropping a course has to be "approved".

In the written response to the stakeholder's consultation, information from numerous schools about requirements for physical chemistry were provided. The proposed offerings for our program fall within the spectrum of those requirements. The Hope example was offered because it is an ACS certified degree and we compare very favorably with the requirements with the exception of a single one-credit physical chemistry lab. It is not true that 8 hrs of physical chemistry are required in their program. While some schools require more than our proposal, some offer less. If the program does grow and our department offerings do expand perhaps the issue can be revisited.

In summary I believe the concerns have been addressed and that any policy violations for consultation were inadvertent.

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Tuesday, March 21, 2017 10:53 PM
To: Mark A Thomson; Kim K Colvert
Cc: Scott M Herron; Paula L Hadley-Kennedy; David V Frank
Subject: RE: Proposal 17-078

Hi Mark,

Thank you for sending this information and for your efforts and leadership towards a successful outcome for the Biochemistry proposal. However, given the volume of proposals that is on UCC's agenda and the time constraint, I ask that all communication regarding the responses to UCC questions come from Kim, who is listed as the contact person on the proposal. This way, I will be responding to one person who can then disseminate the information to other members in the department. To better understand the constrain under which UCC is operating, we have extended our weekly meeting time to 2 hours for the next few weeks so that we can complete the review of proposals that require Senate discussions in time for the April Senate meeting.

Regarding CAS College Committee concerns on Form B, UCC discussed it on March 15 as I shared in my quick email of March 17. Consequently, we do not have it on our agenda for March 22 meeting. Our committee's consensus is that Form B was used for its intended purposes by Physical sciences to request "support for the proposal"; and Biology to express areas of concerns that may potentially impact faculty load and course scheduling. Concerns about any additional comments on the form should be directed to Biology Department. This level of communication between proposal initiator and department they are consulting is out of UCC jurisdiction. What UCC requires is proof that consultation takes place and any concerns raised are addressed.

Again, I commend your efforts in advocating for your department but I want to assure you that we are all working towards the same goal of what's best for our students.

Kemi

Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

From: Mark A Thomson
Sent: Monday, March 20, 2017 1:44 PM
To: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>; Kim K Colvert <KimColvert@ferris.edu>
Cc: Scott M Herron <ScottHerron@ferris.edu>; Paula L Hadley-Kennedy <PaulaHadley-Kennedy@ferris.edu>; David V

Frank <DavidFrank@ferris.edu>
Subject: RE: Proposal 17-078

Kemi,

I believe Kim has responded regarding point 1 in your e-mail of March 17. "1. Evidence of written response to Biology department." The written response to the Consultation was given to the Dean's Office with the proposal with the understanding that it would be transmitted to the Biology Department through their representative on the College Curriculum Committee.

In response to point 2 in your e-mail, "2. Reason for the college vote of "support with concern" and proposal initiator's response." I am attaching the minutes from the College Curriculum Meeting. The highlighted portion indicates the discussion. The "support with concerns" vote was by Scott Herron and he indicated at the time that he still maintained the concerns expressed in the FORM B consultation from his department. I have contacted Scott to follow up for a response in writing that the initiator can address. I will also attach his e-mail and her response.

I will be happy to attend the UCC meeting on Wednesday to discuss this with the committee as well as to address the concerns that our College Committee raised and that you attached to this proposal. Please let me know time and location.

Mark

Paula L Hadley-Kennedy

From: Scott M Herron
Sent: Thursday, March 23, 2017 1:59 PM
To: Paula L Hadley-Kennedy
Subject: FW: Urgent - BS Biochemistry Proposal

Hi Paula,

I sent this to the CAS CC chair Mark Thomson. You can attach this to the proposal. This is what the email Mark sent Monday with 3 attachments was in reference to. Their response sent to you was something that should have been sent to me by Kim. I have it now.

Scott M. Herron
Professor of Biology, Ferris State University
231-591-2087; herrons@ferris.edu

Society of Ethnobiology, President
www.ethnobiology.org

From: Scott M Herron
Sent: Monday, March 20, 2017 11:00 AM
To: Mark A Thomson <MarkThomson@ferris.edu>
Subject: RE: Urgent - BS Biochemistry Proposal

Hi Mark,

I will write them here and we can chat in person. This will give something to be responded to. I had to look at the minutes from the Feb 14 meeting, because I thought my concerns would be in the minutes. They do not seem to be.

The concerns I had that kept me from voting support were as follows:

My department had overwhelmingly voted against the proposal, and while changes were made to improve the proposal, my departmental faculty had not had a chance to see the proposal we in the college CC were voting on so I knew there would be concerns (both in process, as well as content).

I remain concerned about the viability of the new program (BS Biochemistry) as well as the existing program (BA Biochemistry) based on the students available at Ferris prepared/qualified to enter and complete the programs. There has been no increase in students of this caliber at FSU and now if passed, three programs (perhaps 4) will be competing for the same students; BA Biochemistry, BS Biochemistry, BS Industrial Chemistry- Fermentation Science, and BS Biotechnology. No recruiting plan or strategy was in the PCAF to show how/why the population would increase. In fact, the competing programs across the state listed in the Form A and PCAF, already have significantly larger populations, and I don't see how FSU's differentiating itself from these programs, which would be expected for recruiting and expansion of this student population.

I did not get a chance formally to ask my faculty if the removal of upper level biology electives was something they supported? Nor did I get the chance to ask about the change from requiring both BIOL 470 and 474 to choosing between BIOL 470 and 474 was supported.

Lastly, my faculty had strong feelings about Physical Chemistry, and I appreciated the comparative data shared in the proposal I had the opportunity to see in the CAS CC, but my faculty had not. Following up this concern, both myself and the faculty I had a chance to talk with thought the proposal missed the opportunity to at least add a lab to Physical Chemistry, or to add a second class in this subject matter. The provided detailed example program from Hope College did have the 8 credits in Physical Chemistry with labs.

In summary, the proposal was vastly improved in content, thus I supported it with concerns, because the consultation process was not handled appropriately and I still had some concerns as noted above.

Scott M. Herron
Professor of Biology, Ferris State University
231-591-2087; herrons@ferris.edu

Society of Ethnobiology, President
www.ethnobiology.org

From: Mark A Thomson
Sent: Monday, March 20, 2017 8:09 AM
To: Scott M Herron <ScottHerron@ferris.edu>
Subject: Urgent - BS Biochemistry Proposal
Importance: High

Scott,
I need to talk to you with some degree of urgency regarding the proposal.

At the college level, you voted to support with concerns. There needs to be a written statement of your concerns so that Kim can respond to them. Your concerns and Kim's response to them need to be in Paula's hands in the Senate office on Monday in order for the UCC to discuss the proposal on Wednesday.

17-069

JAN 24 2017

Form A
Effective Fall 2016

CURRICULUM PROPOSAL SUMMARY AND ROUTING FORM

Proposal Title: Creation of a new Associate in Science (Natural Science) Program

Initiating Individual: Bradley Isler — Initiating Department or Unit: Biological Sciences and Physical Sciences

Contact Person's Name: Bradley Isler — Email: BradleyIsler@ferris.edu — Phone: 591-2641

NOTE: ALL required forms must be completed and included BEFORE submission of the proposal to the University Curriculum Committee.		FORM (checkboxes indicate typically required forms specific to the curricular action)					
PROPOSAL GROUP: See Table B-1 in the UCC Manual for description.	PCAF Link	A	B-UND B-GRA	C	D	EF	FIN
I-A: New Degree, major, concentration, minor, or redirection of a current offering	☒	☒	☒	☒	☒	☐	☒
I-B: Deletion of a degree, major, concentration, or minor		☐	☐			☐	
II-A: New Course, modification of a course, deletion of a course Check here if deleting a course		☐	☐ ☐	☐	☐	☐ ☐	
II-B: Minor Curriculum Clean-up		☐	☐	☐	☐	☐	☐
III: Certificate (☐ College Credit ☐ Non-credit ☐ New Certificate)	☐	☐	☐	☐	☐	☐	☐
IV: Other site location (☐ College Credit ☐ Non-credit)		☐	☐		☐	☐	☐
IV: Off Campus: Other site location (☐ College Credit ☐ Non-credit)	☐	☐	☐		☐	☐	
IV: Non-degree Offering : Other site location (☐ College Credit ☐ Non-credit)	☐	☐			☐		

	PLEASE PRINT and SIGN YOUR NAME	DATE	VOTE/ACTION * Number Count
Program Representative ** Bradley Isler - BIOL	Bradley J Isler	1/24/17	1 Support __ Support with Concerns __ Not Support __ Abstain
Department/School/Faculty Representative Vote ** Scott Herron - BIOL Mark Thomson - PHYS	Scott Herron MT	1/24/17 1/24/17	16 Support __ Support with Concerns __ Not Support 1 Abstain
Department/School Administrator Mary Zimmer - BIOL Dave Frank - PHYS	Mary Zimmer Dave Frank	1/24/17 1/24/17	1 Support __ Support with Concerns __ Not Support __ Abstain
College Curriculum Committee/Faculty Mark Thomson	MT	2/6/17	5 Support __ Support with Concerns __ Not Support __ Abstain
UCC Representative	Olukemi Fadayomi OF	2/8/17	X Support __ Hold __ Not Support
Dean Joseph Lipar		2/10/17	X Support __ Support with Concerns __ Not Support
University Curriculum Committee **			__ Support __ Support with Concerns __ Not Support __ Abstain
Senate **			__ Support __ Support with Concerns __ Not Support __ Abstain
Academic Affairs			__ Support __ Hold __ Not Support

* Support with Concerns or Not Support must include identification of specific concern with appropriate rationale.

** Number Count must be given for all members present and/or voting.

To be completed by Academic Affairs — Date of Implementation: _____

_____ President (Date Approved)

_____ Board of Trustees (Date Approved)

_____ Academic Officers of MI (Date Approved)

1. Proposal Summary: (Summary is generally less than one page. Briefly state what is proposed with a summary of rationale and highlights)

The current Associate in Science (Pre-Science) program has traditionally met several needs:

1) As an "introductory" program for incoming students that are interested in a natural science based program but do not meet the entrance requirements to begin the typical first year combination of mathematics, biology, and chemistry classes. After fulfilling the entrance requirements (generally mathematics courses), these students are moved into an academic program that matches that of their career goals (BIPM, BIPO, BIFB, CHEM, etc.) and then are placed into the typical first year course sequence of math, biology, and chemistry. Identifying these students as pre-science is also very helpful from an advising perspective, as the pre-science program serves as a useful delineating tool that can be used by professional advisors to more closely monitor these student's progress during the early stages of their studies at Ferris.
2) As a primary program for those students that are seeking one of the natural-science related Bachelor's level programs (BIPM, BIPO, CHEM, etc.) but also qualify for the Tuition Incentive Program (TIP). To receive TIP funding, students must be enrolled in an associate program or certificate.
3) As a way to increase graduation rate metrics. Currently, some pre-professional students enter Ferris and are subsequently accepted into their professional school of interest without completing their Bachelor's degree. These pre-professional students can earn an Associate in Science (Pre-Science) as part of their Bachelor's level requirements, which allows Ferris to count these students as graduates of a Ferris State program.

While the current Associate in Science (Pre-Science) program has been adequate for our needs, there are several reasons why we wish to redirect most students in this program into an Associate of Science (Natural Science) program:

1) Ferris was recently audited by the State of Michigan with respect to administration of the TIP and found to be out of compliance with some requirements of the program. One of the major areas of noncompliance was with respect to the TIP requirement that in order for a student to receive full TIP funding, any courses taken must be specified on a program checksheet for an associate's degree or certificate. Currently, the Associate of Science (Pre-Science) checksheet is incredibly generic, with no specific course requirements listed in the **Scientific Understanding and Mathematics** or **Electives** sections of the checksheet. The redirection to an Associate in Science (Natural Science) program with more specific course requirements will allow TIP eligible students to continue to receive TIP funding.
2) The "Pre-Science" title for the current program is quite vague. There are many types of "science" including natural science, political science, social science, etc. This program has traditionally been used for students interested in pursuing a career in the natural sciences, so the name of the program should reflect this fact.

Courses included on the new Associate in Science (Natural Science) checksheet will include courses that were used to fulfill the requirements for the Associate in Science (Pre-Science) degree, which are all courses included in natural science-based Bachelor's programs. Course requirements for the new A.S. Natural Science program will not be significantly different from that of the existing A.S. Pre-Science program, the course requirements will just now be specifically listed on the checksheet. No new courses will be created for inclusion in the A.S. Natural Science program.

Only two changes will be made to the **Admission Requirements** and **Graduation Requirements** sections of the A.S. Natural Science checksheet compared to those sections on the A.S. Pre-Science checksheet:

1) The total number of credits for the A.S. Natural Science is 60 credits.
2) Reference to SAT scores is made. This is due to the fact that high-school students in Michigan are now taking the SAT instead of the ACT.

This proposal will be submitted for approval by two academic departments: The Department of Biological Sciences and the Department of Physical Sciences.

2. Summary of Curricular Action (Check all that apply to this proposal)

☐ Degree ☒ Major ☐ Minor ☐ Concentration ☐ Certificate ☐ Course

☒ New ☐ Modification ☐ Deletion

Name of Degree, Major, etc.: New = Associate of Science (Natural Science), Delete = Associate of Science (Pre-Science)

3. Summary of All Course Action Required:

A. Newly Created Courses to be Added to the Catalog

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

B. Courses to be Deleted from FSU Catalog

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

C. Existing Courses to be Modified

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

D. Addition of existing FSU courses to program

Prefix	Number	Title
COMM	105	Interpersonal Communications
COMM	121	Public Speaking
BIOL	121	General Biology 1
BIOL	121	General Biology 2
BIOL	205	Human Anatomy/Physiology
BIOL	321	Human Physiology and Anatomy 1
BIOL	322	Human Physiology and Anatomy 2
BIOL	218	Microbial Ecology
BIOL	286	General Microbiology
BIOL	386	Microbiology and Immunology
CHEM	121	General Chemistry 1
CHEM	122	General Chemistry 2
CHEM	214	Fundamentals of Organic Chemistry
CHEM	321	Organic Chemistry 1
CHEM	322	Organic Chemistry 2
PHYS	130	Concepts in Physics
PHYS	211	Introductory Physics 1
PHYS	212	Introductory Physics 2
PHYS	241	General Physics 1
PHYS	242	General Physics 2
GEOL	121	Physical Geology
MATH	115	Intermediate Algebra
MATH	120	Trigonometry
MATH	130	Advanced Algebra-Analytical Trigonometry
MATH	220	Analytical Geometry- Calculus I
MATH	251	Statistics for the Life Sciences

E. Removal of existing FSU courses from program

Prefix	Number	Title
Click here to enter text.	Click here to enter text.	Click here to enter text.

4. Summary of All Consultations

Form Sent (B/B-UGPC or C)	Date Sent	Responding Department	Date Received & By Whom
B	1/26/17	Humanities	
B	1/26/17	English, Literature, and World Languages	
B	1/26/17	Mathematics	
B	1/26/17	Social and Behavioral Sciences	
C	1/26/17	FLITE	

Will External Accreditation be sought? (For new programs or certificates only)

☐ Yes ☒ No

If yes, name the organization involved with accreditation for this program. Click here to enter text.

5. Is a PCAF required? ☒ Yes ☐ No Is the PCAF approved? ☒ Yes ☐ No (If yes, supply link on Academic Affairs website where PCAF is posted.)
http://www.ferris.edu/HTMLS/administration/academicaffairs/Forms_Policies/Documents/PCAFs/2017Natural_Science_AS.pdf

6. Program Checksheets affected by this proposal (Check all that apply to this proposal) REQUIRED

☒ Add Course ☐ Delete Course ☐ Modify Course ☐ Change Prerequisite ☐ Move from required to elective
☐ Move from elective to required ☐ Change Outcomes and Assessment Plan ☐ Change Credit hours

7. List all Checksheets affected by this proposal:

College	Department	Program
Arts and Sciences	Biological Sciences and Physical Sciences	Associate of Science in Natural Science

FORM B - Undergraduate

Effective Fall 2016

To be completed by each department affected by the proposed change, addition, or deletion. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the administrator of the department to be consulted.

2. The department must respond within 10 business days of receipt of this form to insure inclusion in the final proposal. The completed original is returned to the Academic Senate Office to be inserted into the proposal and a copy is returned to the initiator.

   The department must acknowledge receipt of this form and the proposal in writing to the initiator.

   Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.

3. The Proposing Department must address any concerns raised by the consulted department. This response must be in writing and will be included in the proposal following the original consultation form.

RE: Proposal Title: Redirection of existing Associate in Science (Pre-Science) Program to new Associate in Science (Natural Science) Program

Initiator(s): Bradley Isler

Proposal Contact: Bradley Isler **Date Sent:** 1/26/17

Department: Biological Sciences **Campus Address:** ASC 2004
(Please type)

Based upon department faculty review on Click here to enter text. (Date) we:

☒ Support the above proposal.
☐ Support the above proposal with the modifications and concerns listed below.
☐ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary. Click here to enter text.

Responding Department: English, Literature, and Foreign Languages

Administrator: Debra Courtright-Nash **Date Received:** 1/27/17 **Date Returned:** 2/10/17

Signature:

FORM B - Undergraduate

Effective Fall 2016

To be completed by each department affected by the proposed change, addition, or deletion. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the administrator of the department to be consulted.
2. The department must respond within 10 business days of receipt of this form to insure inclusion in the final proposal. The completed original is returned to the Academic Senate Office to be inserted into the proposal and a copy is returned to the initiator.

   The department must acknowledge receipt of this form and the proposal in writing to the initiator.

   Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.
3. The Proposing Department must address any concerns raised by the consulted department. This response must be in writing and will be included in the proposal following the original consultation form.

RE: Proposal Title: Redirection of existing Associate in Science (Pre-Science) Program to new Associate in Science (Natural Science) Program

Initiator(s): Bradley Isler

Proposal Contact: Bradley Isler **Date Sent:** 1/26/17

Department: Biological Sciences **Campus Address:** ASC 2004
(Please type)

Based upon department faculty review on Click here to enter text. (Date) we:

- ☐ Support the above proposal.
- ☐ Support the above proposal with the modifications and concerns listed below.
- ☐ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary. Click here to enter text.

Responding Department: Humanities

Administrator: Harry Dempsey **Date Received:** Click here to enter text. **Date Returned:** Click here to enter text.

Signature:

FORM B - Undergraduate

Effective Fall 2016

To be completed by each department affected by the proposed change, addition, or deletion. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the administrator of the department to be consulted.
2. The department must respond within 10 business days of receipt of this form to insure inclusion in the final proposal. The completed original is returned to the Academic Senate Office to be inserted into the proposal and a copy is returned to the initiator.

   The department must acknowledge receipt of this form and the proposal in writing to the initiator.

   Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.
3. The Proposing Department must address any concerns raised by the consulted department. This response must be in writing and will be included in the proposal following the original consultation form.

RE: Proposal Title: Redirection of existing Associate in Science (Pre-Science) Program to new Associate in Science (Natural Science) Program

Initiator(s): Bradley Isler

Proposal Contact: Bradley Isler **Date Sent:** 1/26/2017

Department: Biological Sciences **Campus Address: ASC 2004**
(Please type)

Based upon department faculty review on Click here to enter text. (Date) we:

- ☒ Support the above proposal.
- ☐ Support the above proposal with the modifications and concerns listed below.
- ☐ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary. Click here to enter text.

Responding Department: Mathematics

Administrator: Kirk Weller **Date Received:** 01/26/17 **Date Returned:** 01/28/17

Signature:

FEB 2 3 2017

FORM B - Undergraduate

Effective Fall 2016

To be completed by each department affected by the proposed change, addition, or deletion. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the administrator of the department to be consulted.

2. The department must respond within 10 business days of receipt of this form to insure inclusion in the final proposal. The completed original is returned to the Academic Senate Office to be inserted into the proposal and a copy is returned to the initiator.

   The department must acknowledge receipt of this form and the proposal in writing to the initiator.

   Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.

3. The Proposing Department must address any concerns raised by the consulted department. This response must be in writing and will be included in the proposal following the original consultation form.

RE: Proposal Title: Redirection of existing Associate in Science (Pre-Science) Program to new Associate in Science (Natural Science) Program

Initiator(s): Bradley Isler

Proposal Contact: Bradley Isler **Date Sent:** 1/26/17

Department: Biological Sciences **Campus Address: ASC 2004**
(Please type)

Based upon department faculty review on 02/21/2017 (Date) we:

- ☐ Support the above proposal.
- ☐ Support the above proposal with the modifications and concerns listed below.
- ☒ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on current curriculum including prerequisites, scheduling, room assignments, and/or faculty load for your department. Use additional pages, if necessary. Social and Behavioral Sciences faculty think that two Geography courses Physical Geography (GEOG 111) and Weather and Climate (GEOG 121) should be in the elective list of this program. Both of the courses fulfill Scientific Understanding criteria.

Responding Department: Social and Behavioral Sciences

Administrator: Meral Topcu **Date Received:** 01/26/2017 **Date Returned:** 02/23/2017

Signature:

Form C
Effective Fall 2016

FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. FLITE must return the original form to the Academic Senate office to be inserted in the proposal and a copy to the initiator. FLITE must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.

RE: Proposal Title: Redirection of existing Associate in Science (Pre-Science) Program to new Associate in Science (Natural Science) Program

Projected number of students per year affected by proposed change: 100

Initiator(s): Bradley Isler

Proposal Contact: Bradley Isler Date Sent: 1/26/17

Department: Biological Sciences (Please type) **Campus Address: ASC 2004**

Liaison Librarian Signature: L S Bassil **Date Received: .** 1/26/17

Dean of FLITE Signature: . [signature] **Date Returned: .** 1/30/17

Based upon our review on (date), FLITE concludes that:

- ☒ Library resources to support the proposed curriculum change are currently available.
- ☐ Additional Library resources are needed but can be obtained from current funds.
- ☐ Support, but significant additional Library funds/resources are required in the amount of $ Click here to enter text..
- ☐ Does not support the proposal for reasons listed below.

Comment regarding the impact this proposal will have on library resources, collection development, or other FLITE programs. Use additional pages if necessary. Click here to enter text.

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN:

☒ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708
NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: BIOL 205- Human Anatomy-Physiology
Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.
For modification, complete all fields that will be changed.
If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
BIOL	205	7	4	3								
Title: **Human Anatomy-Physiology**							Title: Click here to enter text.					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
5		CHEM 114 or CHEM 121 with a C- grade or better.										
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
An integrated course in human anatomy and physiology which emphasizes structure and function as they relate to clinical considerations. Basic concepts of structure and function will be discussed at the cellular, tissue and organ system levels. Laboratory will utilize cadavers in anatomical studies. Designed for students in allied health associate and baccalaureate degree programs and science education. This course meets General Education requirements: Scientific Understanding, Lab.							Click here to enter text.					
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
Course Specific Outcomes: by the end of the semester, you will be able to demonstrate on lecture exams and quizzes, and laboratory quizzes: 1. Knowledge of definitions of basic anatomical terminology. 2. An understanding of the relationship between structure (anatomy) and function (physiology) 3. An understanding of the concept of homeostasis, and how it applies to physiology. 4. The ability to describe the major anatomical features and functions of the 11 organ systems. 5. The ability to identify the major parts of the organ												

systems in the laboratory. 6. An understanding of physiological concepts learned in the laboratory. 7. The ability to describe and understand case examples of systems pathology. 8. The ability to explain, using specific examples, of how homeostatic mechanisms apply to your daily activities, including diet and exercise. 9. The ability to critically analyze reports in the news media about new developments in health and medicine. Assessment plan: 5 Lecture exams, plus lab quizzes, lab practical		
Course Outline including Time Allocation		
Introduction, History of A & P, Cell Biology, Cell Transport, 1 week Tissues, Skin, Bones, 2 weeks Neuron anatomy/membrane potential Neurotransmitters, ANS, PNS, brain stem, Cerebrum, Senses, 3 weeks Muscle physiology, 1 week Endocrine, Hypothalamus, Pituitary, Thyroid, Adrenal, 2 weeks Heart, vessels, Control of blood flow, 2 weeks Digestive, 1 week Respiratory, 1 week Urinary, 1 week Reproductive, 1 week		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS

C. Department Code: BIOL - Biology

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 5

F. Maximum Credit Hours: 5

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: Click here to enter text.

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No

☐ Yes – *If yes, enter equivalent course:* Click here to enter text.

Course Prefix, Number – Course Title

K. Term(s) Offered: Typically Offered Fall, Spring, Summer

L. Max Section Enrollment:
Lecture: 120
Lab: 24

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐*SCACRSE,* ☐*SCADETL,* ☐*SCARRES,* ☐*SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN:

☐ **CREATE,** ☒ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708
NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: BIOL 218- Microbial Ecology
Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.
For modification, complete all fields that will be changed.
If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
BIOL	218	5	2	3								
Title: Microbial Ecology							Title: Microbial Ecology					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
3		BIOL 121 with a grade of C- or better.										
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
The course will cover microbial interactions, both intraspecific and interspecific, and the role of microbes in plant and animal ecology; response to abiotic environmental factors and their role in biogeochemical cycling and biodegradation, and the use of microbes to recover metals and petroleum, and how genetically engineered microbes are being used for pest control. Designed for biology education, environmental biology, and environmental health students.							The course will cover microbial interactions, both intraspecific and interspecific, and the role of microbes in plant and animal ecology; response to abiotic environmental factors and their role in biogeochemical cycling and biodegradation, and the use of microbes to recover metals and petroleum, and how genetically engineered microbes are being used for pest control. Designed for biology education, environmental biology, and environmental health students. Meets General Education requirements: Scientific Understanding Lab.					
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
Outcomes 1) Describe methods used to address questions in the field of microbial ecology. 2) Give examples of and compare and contrast different types of microbial cells 3) Identify various microbial cell structures and define their functions 4) Describe and give examples of diverse metabolic strategies employed by microorganisms							Click here to enter text.					

5) Compare structural vs. phylogenetic approaches to assessing microbial diversity 6) Identify how environmental parameters affect microbial growth 7) Describe ways in which microbes interact with other, plants, and animals 8) Define the roles of different microbes in biocheochemical cycling of nutrients in aquatic and terrestrial habitats. 9) Use your knowledge of microbial diversity and interactions to describe how microbes can be used in various environmental and industrial applications, such as wastewater treatment, composting, bioremediation of metals and petroleum, biofuel production, food and beverage production, and pest control. 10) Demonstrate proper laboratory skills and develop habits of good laboratory practices that extend to your everyday life and future careers. 11) Plot, critically analyze, and interpret data collected upon observations from laboratory exercises and experiments, and make inferences and predictions based upon data interpretations. 12) Communicate effectively individually and in group settings and exchange ideas concerning course-related topics. Assessment plan The above outcomes will be assessed via individual and group class quizzes and activities, short writing assignments, lecture exams, a group oral presentation, a comprehensive final exam, laboratory notebooks entries, laboratory quizzes, lab reports, and a comprehensive final laboratory practical exam.		
Course Outline including Time Allocation		Course Outline including Time Allocation
Introduction to microbial ecology – 2 days Structural diversity of microbes – 4 days Metabolic diversity of microbes – 3 days Phylogenetic diversity of microbes – 2 days Microbial interactions – 3 days Environmental impacts on microbial growth – 2 days Introduction to microbial habitats – 1 day		Click here to enter text.

Carbon and Oxygen cycling – 1 day Soils, oceans, and the Nitrogen Cycle – 2 days Oceans, aquatic springs, and the Sulfur Cycle – 2 days Microbial applications – 5 days		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: AS

C. Department Code: BIOL - Biology

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 3

F. Maximum Credit Hours: 3

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: Click here to enter text.

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:* Click here to enter text.

   Course Prefix, Number – Course Title

K. Term(s) Offered: Spring

L. Max Section Enrollment:
   Lecture: 24
   Lab: 24

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:*_____
Entered: ☐ *SCACRSE,* ☐ *SCADETL,* ☐ *SCARRES,* ☐ *SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN:

☐ **CREATE,** ☒ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION: BIOL 386 – Microbiology and Immunology

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
BIOL	386	7	4	3	0							
Title: Microbiology and Immunology							Title: Click here to enter text.					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
5		BIOL 322 and (CHEM 214 or CHEM 321) with a grade of C- or better										
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
Fundamentals of the microbial world with emphasis on the medical aspects of microbiology, molecular basis of pathogenicity, chemotherapy, and the role of humoral and cellular immune responses in host protection and hypersensitivity. The laboratory provides practical experiences with fundamental concepts, techniques and instrumentation. Designed for students in science baccalaureate degree programs. A prior course in biochemistry is also required.							Fundamentals of the microbial world with emphasis on the medical aspects of microbiology, molecular basis of pathogenicity, chemotherapy, and the role of humoral and cellular immune responses in host protection and hypersensitivity. The laboratory provides practical experiences with fundamental concepts, techniques and instrumentation. Designed for students in science baccalaureate degree programs.					
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
To learn how professionals in microbiology use the scientific method to gain new knowledge and to modify/eliminate existing paradigms. LAB EXERCISES* To learn collaborative skills by working in groups for some assignments. LAB EXERCISES* To learn how to apply certain course material to develop problem solving and critical thinking skills in microbiology. EXAM QUESTIONS* To learn the language/terminology of microbiology. EXAM QUESTIONS* To learn the fundamental							By the completion of this course, students will: 1) Recognize and explain the key terms, concepts, and theories of Microbiology and Immunology. Measured with low-level cognitive items on quizzes and exams. 2) Apply their knowledge of Microbiology and Immunology in new contexts to solve problems. Measured with mid-level cognitive items on quizzes and exam, as well as in lab exercises.					

principles of microbial structure and function, microbial metabolism, microbial growth and reproduction, microbial genetics, and the use of antimicrobial drugs. EXAM QUESTIONS* To learn the principles, mechanisms, and theories of microbial pathogenicity in humans. EXAM QUESTIONS* To learn the structure, function, and control of the immune system and the mechanisms of hypersensitivity. EXAM QUESTION		3) Practice the scientific method to investigate Microbiology-related hypotheses. Measured using laboratory exercises 4) Safely and correctly perform microbiological laboratory techniques. Measured by observing laboratory exercises 5) Effectively collaborate with others to complete projects related to Microbiology issues. Measured by observing laboratory exercises.
Course Outline including Time Allocation		Course Outline including Time Allocation
Introduction and History: 2 hr Prokaryotic & Eukaryotic Cells: 2 hr Bacterial Structure & Function: 4 hr Bacterial Growth/ Sporulation/Taxonomy: 2 hr Viral Structure & Replication: 4 hr Fungal Structure & Taxonomy: 2 hr Microbial Metabolism: 4 hr Microbial Genetics: 4 hr Micro Control: Antimicrobial/Disinfectants: 2 hr Mech. of Microbial Pathogenesis Respiratory Tract/Oral cavity: 2 hr Mech. of Microbial Pathogenesis CNS/Skin and Mucosal Membranes: 2 hr GI Tract Infections/ Intoxications: 2 hr Wound Infections: 2 hr STD: 2 hr Immune System Innate/Phagocytosis: 2 hr Humoral Immunity: 2 hr Cellular Immunity: 2 hr Chronic Inflammation: 2 hr Hypersensitivity / Autoimmunity: 2 hr Hypersensitivity / Immune Based Disease: 2 hr		Click here to enter text.

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study
B. College Code: CAS
C. Department Code: BIOL - Biology
D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed
E. Minimum Credit Hours: 5
F. Maximum Credit Hours: 5
G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: Click here to enter text. **OR** max credits awarded: Click here to enter text.
H. Levels:

☒ Undergraduate
☐ Graduate
☐ Professional

I. Grade Method:
☒ Standard Letter Grading
☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
☒ No
☐ Yes – *If yes, enter equivalent course:* Click here to enter text.
Course Prefix, Number – Course Title

K. Term(s) Offered: Spring, Summer

L. Max Section Enrollment:
Lecture: 24
Lab: 24

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐ *SCACRSE,* ☐ *SCADETL,* ☐ *SCARRES,* ☐ *SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: Existing course, no changes being made, No previous Form E/F currently available

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION:

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
CHEM	214		3	3								
Title: Fundamentals of Organic Chemistry							Title:					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
4		CHEM 122										
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
A survey course in organic chemistry which uses the functional group approach to cover the important preparations and reactions which organic compounds undergo. Also provides an introduction to organic compounds of biological significance. Concurrent laboratory sessions include exercises in basic lab techniques, demonstrations, and workshops. Designed for students who do not anticipate further studies in organic chemistry.												
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
1. Identify functional groups in chemical structures, systematically name molecules given their structures, and draw structures given their names. 2. Predict relative physical properties of organic compounds based on chemical structures. 3. Predict chemical reactivity of organic compounds based on their chemical structure—functionality, size, shape, and regiochemistry. 4. Identify key elements of reaction energy profile diagrams, their relation to reaction mechanisms, and the effect on reaction outcome. 5. Safely execute laboratory methods for the synthesis, purification, and characterization of organic substances. The outcomes for this chemistry course are assessed with a variety of methods including internal and external examinations, quizzes, presentations, laboratory notebooks, and/or laboratory reports.												
Course Outline including Time Allocation							Course Outline including Time Allocation					
Intro and Review of General Chemistry 2 days Alkanes/Cycloalkanes 3 days Alkenes and Alkynes 3 days Aromatic Hydrocarbons 2 days												

Alkyl Halides	2 days		
Alcohols, Ethers, Phenols, Thiols	3 days		
Amines	1 day		
Carboxylic Acids	2 days		
Carboxylates	3 days		
Aldehydes and Ketones	2 days		
Carbonyls	1 day		
Optical Isomerism/Molecular Chirality	3 days		
Carbohydrates	2 days		
Lipids	3 days		
Amino Acids, Proteins, and Enzymes	3 days		
Nucleic Acids	4 days		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS – Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 4

F. Maximum Credit Hours: 4

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: **OR** max credits awarded:

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:*

K. Term(s) Offered: Spring

L. Max Section Enrollment:
   Lecture: 120
   Lab: 24

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:*_____
Entered: ☐*SCACRSE,* ☐*SCADETL,* ☐*SCARRES,* ☐*SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: Existing course, no changes being made, No previous Form E/F currently available

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION:

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT						PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar	Prefix	Number	Contact Hours	Lecture	Lab	Seminar
GEOL	121		3	2							
Title: Fundamentals of Organic Chemistry						Title:					
Credit Hours		Prerequisites		Co-requisites		Credit Hours		Prerequisites		Co-requisites	
4											
Course/Catalog Description *(125 words)*						Course/Catalog Description *(125 words)*					
Examines the processes that continuously interact to cycle rock and water through the earth system, thus shaping the surface of our dynamic earth. Plate tectonics is the thread that ties the study of earthquakes, volcanoes, and mountain belts; weathering, erosion, and deposition. The interrelation of humans and earth system is a recurring theme.											
Course Outcomes and Assessment Plan						Course Outcomes and Assessment Plan					
1. Express a basic understanding of core concepts in the science of geology. 2. Apply geologic concepts and principles to understand new information and situations they encounter related to the earth system. 3. Explain and apply scientific processes used to investigate the earth system. 4. Examine scientific issues related to humans and geology. The outcomes for this geology course are assessed with a variety of methods including internal examinations, quizzes, daily homework assignments, in-class team assignments, and laboratory notebooks.											
Course Outline including Time Allocation						Course Outline including Time Allocation					
Science and Geology 1.0 weeks Rock cycles 2.0 weeks Geologic Time 1.0 weeks Interior Processes 5.0 weeks Surficial Processes 4.5 weeks											

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   ☐ Practicum
   ☐ Independent Study
B. College Code: CAS – Arts and Sciences
C. Department Code: PHYS - Physical Sciences
D. Credit Hours:
   ☐ Variable
   ☒ Fixed
E. Minimum Credit Hours: 4
F. Maximum Credit Hours: 4
G. Hours may be repeated for additional credit:
   ☒ No
   ☐ Yes – If yes, max times repeated: **OR** max credits awarded:
H. Levels:
   ☒ Undergraduate
   ☐ Graduate
   ☐ Professional
I. Grade Method:
   ☒ Standard Letter Grading
   ☐ Credit/No Credit
J. Does the proposed course replace an equivalent course?
   ☒ No
   ☐ Yes – *If yes, enter equivalent course:*
K. Term(s) Offered: Spring
L. Max Section Enrollment:
   Lecture: 145
   Lab: 29

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐SCACRSE, ☐SCADETL, ☐SCARRES, ☐SCAPREQ

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: Existing course, no changes being made, No previous Form E/F currently available

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 2017 08

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION:

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT						PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar	Prefix	Number	Contact Hours	Lecture	Lab	Seminar
PHYS	130		3	2							
Title: Fundamentals of Organic Chemistry						Title:					
Credit Hours		Prerequisites		Co-requisites		Credit Hours		Prerequisites		Co-requisites	
4		MATH 110 with C- or better									
Course/Catalog Description *(125 words)*						Course/Catalog Description *(125 words)*					
A survey of physical concepts including mechanics, wave motion, heat, electricity and magnetism, light, and selected topics in modern physics. A minimum of mathematics is utilized to develop problem solving skills. Emphasis is placed on concept development so that science in a modern society may be recognized and appreciated.											
Course Outcomes and Assessment Plan						Course Outcomes and Assessment Plan					
1. Achieve a modest understanding of the conceptual nature of physics and chemistry. 2. Learn to reason qualitatively and logically about physics phenomena and express their knowledge in multiple forms (verbal, pictorial, graphical and mathematical). 3. Demonstrate through homework and examination an ability to correctly apply the fundamental principles of physics and chemistry in the solution of novice level exercises. 4. Use the principles of scientific investigation to formulate a hypothesis and conduct an experiment, collect data, analyze the validity of their experiment and draw accurate conclusions based on evidence.											

Course Outline including Time Allocation			Course Outline including Time Allocation
The study of motion	1.5 weeks		
Newton's laws	1.5 weeks		
Momentum and energy	2.0 weeks		
The physics of matter	1.0 weeks		
Temperature and heat	1.5 weeks		
Waves and sound	1.5 weeks		
Electricity and magnetism	2.0 weeks		
Light	1.0 weeks		
Selected topics in modern physics	1.5 weeks		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS – Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 4

F. Maximum Credit Hours: 4

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: **OR** max credits awarded:

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:*

K. Term(s) Offered: Fall, Spring

L. Max Section Enrollment:
   Lecture: 140
   Lab: 28

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐ *SCACRSE,* ☐ *SCADETL,* ☐ *SCARRES,* ☐ *SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: Existing course, no changes being made, No previous Form E/F currently available

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 201708

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION:

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT							PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar		Prefix	Number	Contact Hours	Lecture	Lab	Seminar
PHYS	241		4	3								
Title: General Physics 1							Title:					
Credit Hours		Prerequisites		Co-requisites			Credit Hours		Prerequisites		Co-requisites	
5		MATH 220 with C- or better										
Course/Catalog Description *(125 words)*							Course/Catalog Description *(125 words)*					
Principles and practical applications of motion, force, energy, fluids, heat, and sound. Intended for science and engineering majors. Calculus is utilized.												
Course Outcomes and Assessment Plan							Course Outcomes and Assessment Plan					
1. Describe and explain physics concepts relevant to Newtonian mechanics, thermodynamics, & wave motion (including sound). 2. Apply physics concepts to solve standard textbook problems. 3. Combine physics concepts to solve multi-step problems, problems requiring qualitative reasoning, and context-rich ("real world") problems. 4. Design and execute a scientific experiment to test a hypothesis or scientific claim. 5. Analyze and discuss experimental observations and findings. 6. Demonstrate an understanding of the principles of scientific inquiry. The outcomes for this general physics course are assessed with a variety of methods including internal and external examinations, quizzes, homework, laboratory notebooks and/or laboratory reports.												
Course Outline including Time Allocation							Course Outline including Time Allocation					
Measurements systems 3 days One- and two-dimensional kinematics 7 days Force 5 days Work and energy 5 days Linear momentum and impulse 5 days												

Rotational kinematics and dynamics	4 days		
Angular momentum and torque	4 days		
Rigid body in equilibrium	4 days		
Oscillatory motion	4 days		
Buoyancy and fluid mechanics	4 days		
Mechanical wave and its properties	5 days		
Temperature scales and ideal gases	6 days		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS – Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 5

F. Maximum Credit Hours: 5

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: **OR** max credits awarded:

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:*

K. Term(s) Offered: Fall, Spring

L. Max Section Enrollment:
   Lecture: 120
   Lab: 24

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:*_____
Entered: ☐*SCACRSE,* ☐*SCADETL,* ☐*SCARRES,* ☐*SCAPREQ*

Form EF
Effective Fall 2016

Course Information Form *(formerly Form E and Form F)*

I. ACTION TO BE TAKEN: Existing course, no changes being made, No previous Form E/F currently available

☐ **CREATE,** ☐ **MODIFY, OR** ☐ **DELETE**

Desired Term Effective Date (6-digit code): 2017 0Ø

NOTE: The first four digits indicate year, the next two digits indicate month in which term begins.

II.COURSE IDENTIFICATION:

Course Prefix, Course Number – Course Title

If deleting a course STOP HERE.

For modification, complete all fields that will be changed.

If creating a course, complete all relevant fields.

CURRENT						PROPOSED					
Prefix	Number	Contact Hours	Lecture	Lab	Seminar	Prefix	Number	Contact Hours	Lecture	Lab	Seminar
PHYS	242		4	3							
Title: General Physics 2						Title:					
Credit Hours		Prerequisites		Co-requisites		Credit Hours		Prerequisites		Co-requisites	
5		PHYS 241 with C- or better MATH 230 with C- or better									
Course/Catalog Description *(125 words)*						Course/Catalog Description *(125 words)*					
Continuation of PHYS 241. Principles and practical applications of electricity, magnetism, light, and modern physics.											
Course Outcomes and Assessment Plan						Course Outcomes and Assessment Plan					
1. Describe and explain physics concepts relevant to the wave and particle nature of light, electrical interactions, electric circuits and electric energy, magnetism, electromagnetic interactions, and atomic theory. 2. Apply physics concepts to solve standard textbook problems. 3. Combine physics concepts to solve multi-step problems, problems requiring qualitative reasoning, and context-rich ("real world") problems. 4. Design and execute a scientific experiment to test a hypothesis or scientific claim. 5. Analyze and discuss experimental observations and findings. 6. Demonstrate an understanding of the principles of scientific inquiry. The outcomes for this general physics course are assessed with a variety of methods including internal and external examinations, quizzes, homework, laboratory notebooks and/or laboratory reports.											
Course Outline including Time Allocation						Course Outline including Time Allocation					
Electrical charge 6 days Capacitors and their combinations 3 days											

Current and resistance	4 days		
Combination of resistors	4 days		
Magnetic field	4 days		
Calculations of magnetic fields	4 days		
Faraday's law and Lenz' law	4 days		
Magnetic inductance and RLC circuit	3 days		
Alternating current circuit	3 days		
Electromagnetic waves	2 days		
The nature and speed of light	4 days		
Geometrical optics	3 days		
Interference of light	4 days		
Diffraction and polarization of light	4 days		
Selected topics in modern physics	4 days		

A. If not LEC/LAB/SEM, Check box as appropriate *[See Definitions in Appendix E]:*
   - ☐ Practicum
   - ☐ Independent Study

B. College Code: CAS – Arts and Sciences

C. Department Code: PHYS - Physical Sciences

D. Credit Hours:
   - ☐ Variable
   - ☒ Fixed

E. Minimum Credit Hours: 5

F. Maximum Credit Hours: 5

G. Hours may be repeated for additional credit:
   - ☒ No
   - ☐ Yes – If yes, max times repeated: **OR** max credits awarded:

H. Levels:
   - ☒ Undergraduate
   - ☐ Graduate
   - ☐ Professional

I. Grade Method:
   - ☒ Standard Letter Grading
   - ☐ Credit/No Credit

J. Does the proposed course replace an equivalent course?
   - ☒ No
   - ☐ Yes – *If yes, enter equivalent course:*

K. Term(s) Offered: Spring

L. Max Section Enrollment:
   Lecture: 120
   Lab: 24

To be completed by Academic Affairs Office: **Standards & Measures Coding and General Education Code**
☐ **Basic Skill (BS),** ☐ **General Education,** ☐ **Occupational Education, Gen Ed. Codes:** _____

UCC Chair Signature & Date:

_____

Academic Affairs Approval Signature & Date:

_____

OFFICE OF THE REGISTRAR USE ONLY
*Date Rec'd:*_____ *Date Completed:* _____
Entered: ☐*SCACRSE,* ☐*SCADETL,* ☐*SCARRES,* ☐*SCAPREQ*

COURSE INFORMATION FORM

FORM E
Rev. May 2013

Complete all items below

Check all boxes where modifications are being made.
Enter the modification to be made.

Course Identification

☐ Prefix CHEM ☐ Number 121 ☐ LEC 4 LAB 3 SEM .

☐ Title General Chemistry 1

☐ Credit Hours 5

☐ Prerequisites MATH 115 with C- or better or ACT Math 24 or SAT 560 and CHEM 103 with C- or better or 1 year HS Chemistry
Co-requisite None

☐ Course Description: Fundamental principles, laws and theories of general chemistry, including stoichiometry, gas laws, thermochemistry, atomic structure, chemical bonding, periodicity, liquids and solids, solution chemistry, and theories of acids and bases. Concurrent laboratory-workshop sessions will include exercises illustrating the principles discussed in lecture. Students who anticipate enrolling in chemistry courses at the 200-level or higher should take this course. This course meets General Education requirements: Scientific Understanding, Lab.

☐ Course Outcomes and Assessment Plan
Upon completion of this course, a student will:

1. Apply the scientific method to solve chemical problems, interpret chemical phenomena and propose reasonable explanations.
2. Calculate enthalpy changes of reactions using calorimetry data, standard enthalpies of formation, Hess's law, and bond energies.
3. Carry out unit and molar conversions in stoichiometric problems.
4. Explain the nature and properties of matter, including the types of attractions, from a macroscopic and atomic perspective.
5. Identify different types of chemical reactions and write various forms of balanced equations for reactions in aqueous solution.
6. Name and identify simple inorganic molecules and draw their overall geometry.
7. Use the periodic table to organize and correlate electronic structure, properties and reactivity of elements and compounds.

The outcomes for this chemistry course are assessed with a variety of methods including internal and external examinations, quizzes, presentations, laboratory notebooks, and/or laboratory reports.

☐ Course Outline including Time Allocation

Basic Concepts of Chemistry	1 week
Atoms and elements	1 week
Molecules and Compounds	1 week
Introduction to Chemical Reactions	1 week
Stoichiometry	1 week
Thermochemistry	1 week
The Electronic Structure of Atoms	1 week
Chemical Bonds between Atoms	2 weeks
Gases and Gas Laws	1 week
Liquids and Solids	1 week
Solutions and Colloids	1 week
Ionic reactions in Solution	1 week
Acids, Bases, and Neutralization Reactions	1 week
Testing	1 week

COURSE INFORMATION FORM

FORM E
Rev. May 2013

Complete all items below

Check all boxes where modifications are being made.
Enter the modification to be made.

Course Identification

☐ Prefix CHEM ☐ Number 122 ☐ LEC 4 LAB 3 SEM ___.

☐ Title General Chemistry 2

☐ Credit Hours 5 ☒ Prerequisites Co-requisite None
(Current) MATH 115 with C- or better or ACT Math 24 or SAT 560 and CHEM 121 with C- or better
(Proposed) CHEM 121 with C- or better

☐ Course Description: Continuation of CHEM 121, including oxidation-reduction reactions, electrochemistry, chemical equilibrium, chemical kinetics, nuclear chemistry, thermodynamics, and descriptive chemistry of metals and nonmetals. Laboratory will involve some experiments illustrating topics discussed in lecture along with several sessions devoted to the qualitative analysis of common cations and anions. Is a prerequisite for most 200-level or higher classes in chemistry. This course meets General Education requirements: Scientific Understanding, Lab.

☐ Course Outcomes and Assessment Plan
Upon completion of this course, a student will:

1. Apply common theories of acids and bases to describe relevant species in acidic solutions, basic solutions and buffers.
2. Apply appropriate thermodynamic factors to determine the spontaneity of a process.
3. Apply theoretical models of reaction rates to the use of rate laws and the description of possible reaction mechanisms.
4. Describe at a molecular level what takes place when physical or chemical systems come to equilibrium, interpret diagrams or graphs representing such systems, and calculate concentrations of species in reactions that have come to equilibrium.
5. Identify common radioactive particles and describe their role in basic nuclear reactions.
6. Design and perform lab experiments and interpret data.
7. Integrate diverse concepts in chemical kinetics, redox reactions and electrochemistry, and the chemistry of the elements and apply them to new and unknown problems.

The outcomes for this chemistry course are assessed with a variety of methods including internal and external examinations, quizzes, presentations, laboratory notebooks, and/or laboratory reports.

☐ Course Outline including Time Allocation

Chemical Equilibrium	3 weeks
Chemical Kinetics	1.5 weeks
Oxidation-Reduction Reactions	1 week
Electrochemistry	1 week
Thermodynamics	1.5 weeks
Nuclear Chemistry	1.5 weeks
Descriptive Chemistry of Nonmetals	1.5 weeks
Descriptive Chemistry of the Representative Metals	1 week
Descriptive Chemistry of the Transition Metals	1 week
Qualitative Analysis	1 week
Testing	1 week

COURSE INFORMATION FORM

FORM E
Rev. May 2013

Complete all items below

Check all boxes where modifications are being made.
Enter the modification to be made.

Course Identification

☐ Prefix CHEM ☐ Number 321 ☐ LEC 4 LAB 3 SEM ___.

☐ Title Organic Chemistry 1

☐ Credit Hours 5 ☐ Prerequisites CHEM 122 with C- or better Co-requisite None

☐ Course Description: Modern bonding theory in organic molecules, theory of reactions, stereochemical principles, chemistry of alkanes, cycloalkanes, alkenes, dienes, alkynes, aromatics, and alcohols, with special emphasis on reaction mechanisms. Concurrent laboratory includes basic laboratory techniques, synthesis, TLC and GC, stereochemistry and spectroscopy workshops. This course meets General Education requirements: Scientific Understanding, Lab.

☐ Course Outcomes and Assessment Plan

Upon completion of this course, a student will:

1. Demonstrate the techniques necessary to plan and execute the synthesis, purification and characterization of organic compounds.
2. Predict relative physical and spectral properties of organic compounds based on chemical structures.
3. Predict chemical reactivity of organic compounds based on their chemical structure – functionality, size, shape, regio-, and stereochemistry – emphasis on the chemistry of hydrocarbons and haloalkanes.
4. Identity functional groups in chemical structures, systematically name molecules given their structures, and draw structures given their names.
5. Draw reaction energy profile diagrams and illustrate reaction mechanisms.

The outcomes for this chemistry course are assessed with a variety of methods including internal and external examinations, quizzes, presentations, laboratory notebooks, and/or laboratory reports.

☐ Course Outline including Time Allocation

Atoms to molecules: orbital structure and theories of bonding	1 week
Charge, polarity and stability: inductive and resonance effects	1 week
Equilibria and Acid/Base chemistry	1 week
Naming, physical properties and conformational states of alkanes	1 week
Cycloalkanes: nomenclature, ring strain, conformational vs configurational change	1 week
Stereochemistry	1 week
Preparation, naming, physical properties, and chemical properties of alkenes and conjugated dienes	2 weeks
Preparation, naming, physical properties, and chemical properties of Alkynes	1 week
Preparation, naming and reactions of haloalkanes	1 week
Substitution and elimination reactions at the saturated carbon	1 week
Structure determination by mass spectrometry and UV-Vis, infrared, and NMR spectroscopy	2 weeks
Structure, physical properties, naming and spectroscopy of aromatic compounds	1 week
Testing	1 week

COURSE INFORMATION FORM

FORM E
Rev. May 2013

Complete all items below

Check all boxes where modifications are being made.
Enter the modification to be made.

Course Identification

☐ Prefix CHEM ☐ Number 322 ☐ LEC 4 LAB 3 SEM ___ (current)

☐ Title Organic Chemistry 2

☐ Credit Hours 5 ☒ Prerequisites Co-requisite None
(Current) CHEM 321 with D- or better or CHEM 221
(Proposed) CHEM 321 with C- or better

☐ Course Description: Study of ethers and epoxides, carbonyl-containing compounds, aldehydes, ketones, carboxylic acids and their derivatives, carbanion chemistry, aliphatic and aromatic nitrogen-containing compounds, with special emphasis on bioorganic compounds, amino acids and polypeptides, carbohydrates and lipids. Concurrent laboratory includes multistep synthesis, spectroscopic analysis, and the systematic identification of organic compounds with emphasis on chemical separation and purification techniques. This course meets General Education requirements: Scientific Understanding.

☐ Course Outcomes and Assessment Plan
Upon completion of this course, a student will:

1. Design multistep syntheses of organic compounds.
2. Plan and execute the synthesis, purification, and characterization of organic compounds.
3. Predict relative physical and spectral properties of organic compounds based on chemical structures.
4. Predict chemical reactivity of organic compounds based on their chemical structure – functionality, size, shape, regio-, and stereochemistry – emphasis on arenes and compounds containing oxygen, nitrogen and sulfur.
5. Identity functional groups in chemical structures, systematically name molecules given their structures, and draw structures given their names.
6. Draw reaction energy profile diagrams and illustrate reaction mechanisms.

The outcomes for this chemistry course are assessed with a variety of methods including internal and external examinations, quizzes, presentations, laboratory notebooks, and/or laboratory reports.

☐ Course Outline including Time Allocation

Reactions of aromatic compounds	2 weeks
Preparation, naming, physical properties, spectroscopy and reactions of alcohols and phenols	1.5 weeks
Preparation, naming, physical properties, spectroscopy and reactions of ethers and epoxides	1 week
Preparation, naming, physical properties, spectroscopy and reactions of thiols and sulfides	0.5 weeks
Preparation, naming, physical properties, spectroscopy and reactions of aldehydes and ketones	2 weeks
Preparation, naming, physical properties, spectroscopy and reactions of carboxylic acids and derivatives	2.5 weeks
Carbonyl alpha-substitution reactions	2.5 weeks
Preparation, naming, physical properties and reactions of amines and heterocycles	1 week
Biomolecules	1 week
Testing	1 week

Form D - Proposed

FERRIS STATE UNIVERSITY

Natural Science - 60 Credits

Associate of Science

College of Arts and Sciences

Student Name: _____ **Student CWID:** _____

ADMISSION REQUIREMENTS

New Students

- High school courses and grade point average, SAT composite and SAT Math sub scores will be considered in the admission and course placement process.

Transfer Students

- At least 12 credits at the time of application
- A minimum 2.0 overall GPA including an English and mathematics course or will be considered as a new student.

UNIVERSITY GENERAL EDUCATION REQUIREMENTS				
Required		Course Title (Prerequisites shown in parenthesis)	Crs	Gr
COMMUNICATION COMPETENCE – 9 Credits Required				
COMM	105 or 121	Interpersonal Communications Public Speaking	3	
ENGL	150	English 1	3	
ENGL	250	English 2 (ENGL 150)	3	
QUANTITATIVE SKILLS – 3 Credits Required				
This requirement is satisfied in the program requirements area.				
SCIENTIFIC UNDERSTANDING - 7 Credits Required				
This requirement is satisfied in the program requirements area.				
CULTURAL ENRICHMENT – 9 Credits Required **				
SOCIAL AWARENESS – 9 Credits Required **				

** General Education Requirements - "Global consciousness", "race, ethnicity and gender", "social foundation" requirements must be met either through Cultural Enrichment, Social Awareness or other courses; must have a 200 level cultural awareness and a 200 level social awareness.

Freshman Seminar, FSUS 100, is satisfied by:	
Global consciousness requirement satisfied by:	
Race, ethnicity, gender requirement satisfied by:	
Social Foundation satisfied by:	

For Office Use Only

Banner Program Code:
Department/School:
231-591-???? xxxxx@ferris.edu

MyDegree Blocks

Test	Prod

Original Creation Date:
Update Effective Term:
Update Effective Catalog Year:
Update UCC Proposal Number:

Natural Science – Associate of Science - 60 Credits

Required		Course Title (Prerequisites shown in parenthesis)	Crs	Gr
NATURAL SCIENCE REQUIREMENTS - Choose **30 credits** from the following courses				
BIOL	121	General Biology 1 (CHEM 121 concurrent)	4	
BIOL	122	General Biology 2 (BIOL 121 and CHEM 121)	4	
BIOL	205 Or 321	Human Anatomy/Physiology (CHEM 114 or CHEM 121) Human Physiology and Anatomy 1 (BIOL 122 and CHEM 122)	5 4	
BIOL	322	Human Physiology and Anatomy 2 (BIOL 321)	4	
BIOL	218 Or 286 Or 386	Microbial Ecology (BIOL 121) General Microbiology (CHEM 122) Microbiology and Immunology (BIOL 322)	3 3 5	
CHEM	121	General Chemistry 1 (MATH 115 and prior CHEM)	5	
CHEM	122	General Chemistry 2 (CHEM 121)	5	
CHEM	214 Or 321	Fund of Organic Chemistry (CHEM 114 or CHEM 121) Organic Chemistry 1 (CHEM 122)	4 5	
CHEM	322	Organic Chemistry 2 (CHEM 321)	5	
PHYS	130 Or 211 Or 241	Concepts in Physics (MATH 110) Introductory Physics 1 (MATH 116 or 120) General Physics 1 (MATH 220)	4 4 5	
PHYS	212 Or 242	Introductory Physics 2 (PHYS 211) General Physics 2 (PHYS 241)	4 5	
GEOL	121	Physical Geology	4	

MATHEMATICS REQUIREMENTS - Choose **3 Credits** from the following courses				
MATH	115	Intermediate Algebra (MATH 109 or MATH 110)	3	
MATH	120	Trigonometry (MATH 115)	3	
MATH	130	Adv Algebra-Analytical Trig (MATH 120)	4	
MATH	220	Analytical Geometry - Calculus I (MATH 130)	4	
MATH	251	Stats for Life Sciences (MATH 130)	3	

ADDITIONAL GRADUATION REQUIREMENTS

- Students must maintain a 2.00 Cumulative GPA in all FSU courses
- 15 credits FSU Residency
- Minimum 60 total credits

DEGREE OUTCOMES	
1.	Graduates will explain major concepts in the natural sciences.
2.	Graduates will apply natural science theories or principles to analyze and solve problems.
3.	Graduates will utilize the scientific method to investigate problems of the natural sciences.
4.	Graduates will perform laboratory and field techniques appropriate for the natural sciences.
5.	Graduates will collaborate in various team settings.
6.	Graduates will clearly communicate scientific information in both written and oral forms.

FINANCIAL AID FORM

FORM FIN
Effective Fall 2016

To be completed by the Director of Financial Aid (DFA). The DFA must return the original form to the Academic Senate Office to be inserted into the original proposal and a copy to the initiator (proposer). The DFA must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for this proposal.

Proposal Title: Redirection of existing Associate in Science (Pre-Science) Program to new Associate in Science (Natural Science) Program

Initiators: Bradley Isler

Proposal Contact: Bradley Isler **Date Sent: 1/26/17**

Department: Biological Sciences **Campus Address: ASC 2004**

Director of Financial Aid Signature: Heide Wisby **Date Returned: 1-26-17**

Please check all that apply:

☐ The new program is remedial as it prepares students for study at the postsecondary level. This program is not an eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is considered a preparatory program as it prepares a student for a given program, i.e., they do not meet the academic criteria to be admitted into the program. Student is only eligible for Federal Direct Loans for one year.

☐ The new program is a certificate program. Certificate programs are not eligible programs per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a teacher certification program where it provides coursework required for a professional State credential necessary for employment as an elementary or secondary school teacher, but for which the institution awards no academic credential. Students are eligible for Federal Direct Loans only at an undergraduate level.

☐ The new program is a teacher certification program that will award a certificate credential. Certificate programs are not eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a Bachelor Completion program; a two-year degree completion program that requires an associate degree or the successful completion of at least two years of college coursework as a prerequisite for admission. These are aid eligible programs and students may receive financial aid.

☐ The new program is a Master's, Professional, or Doctoral Degree/Major program that allows students to take some undergraduate courses where some deficiency exists. Please note, students are eligible to receive Federal loans for the program, but undergraduate courses will not be included in the total credit count to determine loan eligibility. Students must be half time (Graduate/Professional = 5 credits, Doctoral = 3 credits) in graduate level courses to receive Federal aid.

☒ The new program is an Associate's, Bachelor's, Master's, Professional, or Doctoral Degree/Major and is conferred upon graduation. Per Federal requirements, these are aid eligible programs and students may receive financial aid.

Please include the number of credit hours to earn the degree or credential being sought. This is required as it must be reported to the Department of Education as well as the National Student Loan Clearinghouse, regardless if students are receiving federal aid.

Credits Required to Earn Degree: 60

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Tuesday, February 28, 2017 2:11 PM
To: Bradley Isler
Cc: Paula L Hadley-Kennedy
Subject: Proposal 17-069

Hi Brad,

Your proposal to create a new Associate in Science Program, Proposal 17-069 was reviewed by UCC on Wednesday, February 22, 2017 and we are holding it for the following corrections and/or suggestions:

Form A - No modified courses listed on 3B but Form EFs show modified Biol 205, Biol 386

Checksheet - admission requirements are not clear, there is no semester-by-semester layout

Form EF

- Biol 205 Form EF
  G – is the course repeatable for additional credit?
  J – What course is Biol 205 equivalent to?
- Are all the checked items changing on? If not, please check only the items that you are modifying.
- Some forms list an effective term of 201711 while others list 201708, please correct.

Please send the requested material directly to Paula Hadley in the Senate Office. Feel free to contact me if you need further assistance. Feel free to contact me if you have any question.

Kemi

Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

Paula L Hadley-Kennedy

From: Bradley Isler
Sent: Thursday, March 2, 2017 5:12 PM
To: Paula L Hadley-Kennedy; Meral Topcu
Cc: Gayle E Driggers; Scott M Herron
Subject: RE: Form B - Proposal. 17-069
Attachments: Response to Social and Behavioral Sciences Form B - Feb 2017.docx

Attached, you will find my response to the Department of Social and Behavioral Sciences regarding the AS Natural Science proposal

Bradley J Isler, PhD
Professor of Biology
Biotechnology Program Coordinator
Biology Programs Coordinator
ASC 2113
Ferris State University
Big Rapids, MI 49307
Phone: (231) 591-2641
Fax: (231) 591-2540

-----Original Message-----
From: Gayle E Driggers
Sent: Friday, February 24, 2017 10:21 AM
To: Bradley Isler <BradleyIsler@ferris.edu>; Scott M Herron <ScottHerron@ferris.edu>
Cc: Mark A Thomson <MarkThomson@ferris.edu>; Paula L Hadley-Kennedy <PaulaHadley-Kennedy@ferris.edu>
Subject: FW: Form B - Proposal. 17-069

Brad & Scott,
Please see the request from the UCC to respond to the Form B that was just received.
Gayle

-----Original Message-----
From: Paula L Hadley-Kennedy
Sent: Friday, February 24, 2017 9:14 AM
To: Gayle E Driggers <GayleDriggers@ferris.edu>
Subject: RE: Form B - Proposal. 17-069

Yes, the UCC will want a response. Thanks!

Paual

-----Original Message-----
From: Gayle E Driggers
Sent: Thursday, February 23, 2017 4:51 PM
To: Paula L Hadley-Kennedy <PaulaHadley-Kennedy@ferris.edu>
Cc: Bradley Isler <BradleyIsler@ferris.edu>; Scott M Herron <ScottHerron@ferris.edu>

Subject: Form B - Proposal. 17-069

Paula,

The attached Form B was received in the CAS Dean's Office today. The Natural Science proposal is in the UCC, due to be reviewed soon I believe.

Since this is a vote of "Do not Support" I am also sending it to the proposer, Brad Isler. Will a response be expected? I am sending the original by mail to your office.

Gayle

Gayle Driggers
College of Arts and Sciences | Ferris State University
820 Campus Drive – ASC-3052 | Big Rapids MI 49307
Ph: 231-591-3666 | driggerg@ferris.edu

From: Brad Isler

Subject: Response to Department of Social and Behavioral Sciences regarding AS Natural Science proposal

Date: March 2, 2017

Department of Social and Behavioral Sciences:

The AS Natural Science program is being created to fulfill Tuition Incentive Program (TIP) requirements for students enrolled primarily in pre-professional programs (pre-pharmacy, pre-optometry, etc.). Pre-professional students that currently receive TIP money are enrolled in the AS Pre-Science (PSCI) program. Ferris was recently audited by the State of Michigan and the PSCI program does not meet several of the requirements of the TIP program, namely the inclusion of *specific* course requirements on the program checksheet. To fulfill TIP requirements for our pre-professional TIP students, we created the AS Natural Science program with *specific* course requirements on the checksheet. We chose courses to include on this checksheet based on the courses pre-professional students typically take during their first two years at Ferris. In other words, if you look at the typical MATH, BIOL, and CHEM courses taken by pre-professional students during their first two years at Ferris (and those courses that are required for admission to their respective professional schools), these are the courses that were included on the Natural Science checksheet.

When the AS Natural Science curriculum was being designed jointly by the department of biological sciences and the department of physical sciences, there was a discussion regarding the additional of GEOL and ASTR courses to the program. Both geology and astronomy are indeed part of the "natural sciences" and based on the title of the program alone, would indeed fit in the AS Natural Science curriculum. After an extended discussion, both departments decided that because the true reason for the creation of AS Natural Science was to fulfill the needs of our TIP pre-professional students, we wanted to initially focus on adding only classes to the curriculum that meet the needs of all of our students. While ASTR and GEOL courses are indeed "natural science" courses, these courses are taken only intermittently by the typical pre-professional student that is using TIP funding. Plus, due to the pressure from the State of Michigan to <u>immediately</u> revise our program offerings in order to maintain TIP funding for our students, we also decided that now is not the time to debate endlessly about what constitutes a "natural science" course that should be added to the program curriculum. Discussions will be initiated in the future to decide if additional courses should be added to the AS Natural Science curriculum. The department of Social and Behavioral Sciences is very welcome to join in these future discussions regarding the addition of courses from their department to the AS Natural Science program.

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Sunday, March 19, 2017 10:34 AM
To: Paula L Hadley-Kennedy
Subject: RE: Proposal #17-069, Creation of a new Associate in Science (Natural Science) program

Hi Paula,

Did Brad share any proof of sharing his program's response to Department of Social and Behavioral Sciences with the affected department? If so, please upload with his response. Thanks

Kemi

From: Bradley Isler
Sent: Friday, March 17, 2017 4:41 PM
To: Paula L Hadley-Kennedy <PaulaHadley-Kennedy@ferris.edu>
Cc: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Subject: RE: Proposal #17-069, Creation of a new Associate in Science (Natural Science) program

Hi Paula,

1. I have attached a new Form EF for BIOL 205 with items G and J fixed.
2. The start date for all courses in the proposal should be 201708.
3. The nature of the proposed AS Natural Science program is such that there is not a strict or even a general semester by semester plan that would be appropriate for the checksheet. In fact, the addition of a semester-by-semester layout for this *intentionally* flexible program would give students a false sense of the true nature of the program and might lead them to believe that the program is in fact not flexible in nature. Students tend to blindly follow semester-by-semester course sequences (we have learned this with PPHR students), even if it is not the best plan for their individual needs. The addition of a course sequence plan to this checksheet would make efficient advising of AS Natural Science students more difficult and serve as a detriment to their progression through the program. I have also been told by individuals in my college that the addition of a semester-by-semester course sequence to checksheets is not required, just strongly suggested (when appropriate).

Thanks for all your help!
Brad

Bradley J Isler, PhD
Professor of Biology
Biotechnology Program Coordinator
Biology Programs Coordinator
ASC 2113
Ferris State University
Big Rapids, MI 49307
Phone: (231) 591-2641
Fax: (231) 591-2540

Paula L Hadley-Kennedy

From: Bradley Isler
Sent: Friday, March 17, 2017 4:41 PM
To: Paula L Hadley-Kennedy
Cc: Olukemi O Fadayomi
Subject: RE: Proposal #17-069, Creation of a new Associate in Science (Natural Science) program
Attachments: FormEF - BIOL 205.docx

Hi Paula,

1. I have attached a new Form EF for BIOL 205 with items G and J fixed.
2. The start date for all courses in the proposal should be 201708.
3. The nature of the proposed AS Natural Science program is such that there is not a strict or even a general semester by semester plan that would be appropriate for the checksheet. In fact, the addition of a semester-by-semester layout for this *intentionally* flexible program would give students a false sense of the true nature of the program and might lead them to believe that the program is in fact not flexible in nature. Students tend to blindly follow semester-by-semester course sequences (we have learned this with PPHR students), even if it is not the best plan for their individual needs. The addition of a course sequence plan to this checksheet would make efficient advising of AS Natural Science students more difficult and serve as a detriment to their progression through the program. I have also been told by individuals in my college that the addition of a semester-by-semester course sequence to checksheets is not required, just strongly suggested (when appropriate).

Thanks for all your help!
Brad

Bradley J Isler, PhD
Professor of Biology
Biotechnology Program Coordinator
Biology Programs Coordinator
ASC 2113
Ferris State University
Big Rapids, MI 49307
Phone: (231) 591-2641
Fax: (231) 591-2540

From: Paula L Hadley-Kennedy
Sent: Thursday, March 16, 2017 3:01 PM
To: Bradley Isler <BradleyIsler@ferris.edu>
Cc: Olukemi O Fadayomi <OlukemiFadayomi@ferris.edu>
Subject: Proposal #17-069, Creation of a new Associate in Science (Natural Science) program

Hi Brad:

The UCC has just a few clean up items for this proposal, so that we can move it forward. If you can make the following changes and email them to me in the next few days, it would be appreciated. The UCC should be able to approve it in time for the Academic Senate package that will go out on March 26.

The questions have to do with the E/F forms for the following courses:

BIOL 205, Letter G, is this course repeatable? Also Letter J, What is BIOL 205 equivalent to? (Registrar's Office needs to know)

The following list of courses has the wrong start date on the E/F form: BIOL 386 (201701), CHEM 214 (201711), GEOL 121 (201711), PHYS 130 (201711), PHYS 241 (201711), and PHYS 242 (201711). We can't start courses in November, the way the forms are currently written. The Registrar could guess and say 201708, for August 2017... but we really need to confirm that with you too.

And finally, a semester by semester layout is needed. You can email all of these corrections to me and I will be happy to update and repost the proposal.

Thanks very much!
Paula
FSU Academic Senate

Paula L Hadley-Kennedy

From: Olukemi O Fadayomi
Sent: Friday, March 24, 2017 2:14 PM
To: Bradley Isler
Cc: Billie S Anderson; Brian Holton; Don L Brecken; Elise M Gramza; Frances K Rosen; Greg S Wellman; Joe J Pole; Leonard R Johnson; Mark A VanLent; Mark A Hutchinson; Michelle L Johnson; Paula L Hadley-Kennedy; Rusty A Leonard; Timothy M Eklin
Subject: Proposal 17-069

Hi Brad,

Your proposal to create a new Associate in Science Program, Proposal 17-069 was approved by UCC on Wednesday, March 22, 2017 pending the receipt of a Term-by-Term plan for completing the AA in Natural Science degree. The Form D instructions, both on the form itself and on p. 33-34 of the UCC manual, state that the Term-by-Term plan is required. The UCC discussed whether this requirement should be removed, and agreed to continue to require the plan.

The UCC has read your response regarding why you do not think that a Term-by-Term plan is needed for this particular degree. While we understand that you want the students to recognize that the degree is very flexible, this flexibility discussion could be conveyed when you and other faculty are advising students.

Please submit a revised Form D with a Term-by-Term plan so that your proposal can be forwarded to the Academic Senate for discussion at the April 4 meeting.

The UCC would like to commend you on creating the AA in Natural Sciences degree and note the program will be a nice complement to the current AA in Pre-Science program and will assist in meeting TIP requirements. Congratulations!

Kemi
Olukemi Fadayomi, Ph. D
Professor of Biology
Faculty-in-Residence, Faculty Center for Teaching & Learning
Chair, University Curriculum Committee
Ferris State University
ASC 2009, 820 Campus Drive
Big Rapids, MI 49307-2225

fadayok@ferris.edu
Phone: (231) 591-5628
Fax: (231) 591-2540

First Year				Second Year			
Fall		**Spring**		**Fall**		**Spring**	
BIOL 121	4	BIOL 122	4	BIOL 205	5	BIOL 286	3
CHEM 121	5	CHEM 122	5	CHEM 214	4	General Education	3
General Education	3	MATH 120	3	General Education	3	General Education	3
General Education	3	General Education	3	General Education	3	General Education	3
	15		15		15	General Education	3
							15

This course sequence is only being included in this proposal to serve as an illustration of the ability of a student to complete this degree in a timely matter. This sequence is one of **many** that will allow a student to complete an Associate of Science - Natural Science degree in two years. The above course sequence is not the optimal or preferred course sequence and **should not** be considered as such. There are a large number of combinations of BIOL, CHEM, MATH, PHYS, and GEOL courses that can be combined together to fulfill the requirements of this degree. **This course sequence should not be included on any checksheets for this program nor used for advising purposes.**

17-105

Form A
Effective Fall 2016

CURRICULUM PROPOSAL SUMMARY AND ROUTING FORM

Proposal Title: ISI Cybersecurity Certificates

Initiating Individual: Gerald Emerick **Initiating Department or Unit:** AFIS / COB

Contact Person's Name: Gerald Emerick **Email:** geraldemerick@ferris.edu **Phone:** 231-591-3148

NOTE: ALL required forms must be completed and included BEFORE submission of the proposal to the University Curriculum Committee.		FORM (checkboxes indicate typically required forms specific to the curricular action)					
PROPOSAL GROUP: See Table B-7 in the UCC Manual for description.	PCAF Link	A	B- UND B-GRA	C	D	EF	FIN
I-A: New Degree, major, concentration, minor, or redirection of a current offering	☐	☐	☐	☒	☐	☐	☐
I-B: Deletion of a degree, major, concentration, or minor		☐	☐			☐	
II-A: New Course, modification of a course, deletion of a course Check here if deleting a course		☐	☐ ☐	☐	☐	☐ ☐	
II-B: Minor Curriculum Clean-up		☐	☐	☐	☐	☐	☐
III: Certificate (☐ College Credit ☐ Non-credit ☒ New Certificate)	☐	☒	☐	☐	☒	☐	☒
IV: Other site location (☐ College Credit ☐ Non-credit)		☐	☐		☐	☐	☐
IV: Off Campus: Other site location (☐ College Credit ☐ Non-credit)	☐	☐	☐		☐	☐	
IV: Non-degree Offering : Other site location (☐ College Credit ☐ Non-credit)	☐	☐			☐		

	PLEASE PRINT and SIGN YOUR NAME	DATE	VOTE/ACTION * Number Count
Program Representative **	Gerald Emerick	2/7/2017	17 Support __ Support with Concerns __ Not Support __ Abstain
Department/School/Faculty Representative Vote **	L.H. Bajor	3/1/17	17 Support __ Support with Concerns __ Not Support __ Abstain
Department/School Administrator	L.H. Bajor	3/1/17	✓ Support __ Support with Concerns __ Not Support __ Abstain
College Curriculum Committee/Faculty	Amy Doney	3/15/17	5 Support __ Support with Concerns __ Not Support __ Abstain
UCC Representative	Billie Anderson	3/22/17	✓ Support __ Hold __ Not Support
Dean	DAVID NIGUL	3/22/17	✓ Support __ Support with Concerns __ Not Support
University Curriculum Committee **			__ Support __ Support with Concerns __ Not Support __ Abstain
Senate **			__ Support __ Support with Concerns __ Not Support __ Abstain
Academic Affairs			__ Support __ Hold __ Not Support

* Support with Concerns or Not Support must include identification of specific concern with appropriate rationale.

** Number Count must be given for all members present and/or voting.

To be completed by: Academic Affairs Date of Implementation:

President (Date Approved	Board of Trustees (Date Approved)	Academic Officers of MI (Date Approved)

1. Proposal Summary: (Summary is generally less than one page. Briefly state what is proposed with a summary of rationale and highlights)

The Information Security and Intelligence program faculty are proposing two new certificates to address the growing need for cybersecurity education. The new Cybersecurity Certificate will provide students with a specialization in cybersecurity while the Cybersecurity - Ethical Hacking Certificate will offer a specialization in ethical hacking and penetration testing. According the Bureau of Labor Statistics the job outlook for cybersecurity job growth is 18% faster than average for all occupations through 2024. Both public and private sectors have an ongoing need for talent that has the ability to protect the organization's infrastructure from cyber attack and prevent hackers from stealing critical data. The Information Security and Intelligence faculty are uniquely qualified to offer these certificates in the areas of Cybersecurity and Ethical Hacking. These certificates will appeal to current students, former students, and the surrounding community while leveraging the ISI program's academic center of excellence designation by the National Security Agency as well as a number of industry cybersecurity certification partnerships that the ISI faculty have uniquely established. No new courses are being developed.

2. Summary of Curricular Action (Check all that apply to this proposal)

☐ Degree ☐ Major ☐ Minor ☐ Concentration ☒ Certificate ☐ Course

☐ New ☐ Modification ☐ Deletion

Name of Degree, Major, etc.:

3. Summary of All Course Action Required:

A. Newly Created Courses to be Added to the Catalog

Prefix	Number	Title

B. Courses to be Deleted from FSU Catalog

Prefix	Number	Title

C. Existing Courses to be Modified

Prefix	Number	Title

D. Addition of existing FSU courses to program

Prefix	Number	Title
ISIN	200	Secure Digital Technologies
ISIN	308	Principles of Info Security (ISIN 200 or Instructor Approval)
HSCJ	310	Digital Forensics (ISIN 121 or ISIN 308)
ISIN	409	Network Forensics & Analysis (ISIN 308)
ISIN	306	Security Informatics (Sophomore Standing or Instructor Approval)
ISIN	312	Applications of Information Security (ISIN 308 and ISIN 306 or ISIN 305)
ISIN	335	Pen Testing and Cloud Security (ISIN 308 and ISIN 306 or ISIN 305 or ISYS 288)
ISIN	430	Pen Testing and Mobile Security (ISIN 312 and ISIN 325)

E. Removal of existing FSU courses from program

Prefix	Number	Title

4. Summary of All Consultations

Form Sent (B/B-UGPC or C)	Date Sent	Responding Department	Date Received & By Whom
Form C	3/14/2017		

5. Will External Accreditation be sought? (For new programs or certificates only)

☐ Yes X No

6. Is a PCAF required? ☐ Yes ☒ No Is the PCAF approved? ☐ Yes ☐ No (If yes, supply link on Academic Affairs website where PCAF is posted.)

7. Program Checksheets affected by this proposal (Check all that apply to this proposal) **REQUIRED**

☐ Add Course ☐ Delete Course ☐ Modify Course ☐ Change Prerequisite ☐ Move from required to elective
☐ Move from elective to required ☐ Change Outcomes and Assessment Plan ☐ Change Credit hours

8. List all Checksheets affected by this proposal:

College	Department	Program
COB	AFIS	Cybersecurity Certificate Checksheet (new)
COB	AFIS	Cybersecurity - Ethical Hacking Certificate Checksheet (new)

Form C
Effective Fall 2016

FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. FLITE must return the original form to the Academic Senate office to be inserted in the proposal and a copy to the initiator. FLITE must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for the proposal.

RE: Proposal Title: ISI Cybersecurity Certificate

Projected number of students per year affected by proposed change:

Initiator(s): Gerald Emerick

Proposal Contact: Gerald Emerick **Date Sent:** 3/14/2017

Department: AFIS / COB **Campus Address:** IRC 212L
(Please type)

Liaison Librarian Signature: **Date Received:** 03.17.2017

Dean of FLITE Signature: **Date Returned:** 3/20/17

Based upon our review on (date), FLITE concludes that:

- ☒ Library resources to support the proposed curriculum change are currently available.
- ☐ Additional Library resources are needed but can be obtained from current funds.
- ☐ Support, but significant additional Library funds/resources are required in the amount of $
- ☐ Does not support the proposal for reasons listed below.

Comment regarding the impact this proposal will have on library resources, collection development, or other FLITE programs. Use additional pages if necessary. No additional Library resources are required.

FORM D PROPOSED

Certificate Checksheet: Cybersecurity

Ferris State University – College of Business

ACCOUNTANCY, FINANCE & INFORMATION SYSTEMS (AFIS) DEPARTMENT

Cybersecurity Certificate - 12 Credits

STUDENT NAME: _____ **STUDENT ID#:** _____

PFX	CRSE#	COURSE TITLE (prerequisites shown in brackets ()	S.H.	GRADE	GR. PTS.
ISIN	200	Secure Digital Technologies	3		
ISIN	308	Principles of Info Security (ISIN 200 or Instructor Approval)	3		
HSCJ	310	Digital Forensics (ISIN 121 or ISIN 308)	3		
ISIN	409	Network Forensics & Analysis (ISIN 308)	3		

NOTE: No more than 50% of the credits in this certificate may be transferred from another institution, nor will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

Admission Requirements – Admission requirements for this certificate are identical to the admission requirements for the Information Security and Intelligence program at Ferris State University.

For more information, please call 231-591-2434 to make an appointment with the AFIS department head.

NOTICE REGARDING WITHDRAWAL, RE-ADMISSION AND INTERRUPTION OF STUDIES

Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the certificate which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

Note: A minimum 2.00 GPA is required in all certificate courses for completion of this certificate.

STUDENT SIGNATURE: _____ **DATE:** _____

ADVISOR SIGNATURE: _____ **DATE:** _____

AFIS DEPT. CHAIR/HEAD SIGNATURE: _____ **DATE:** _____

To receive this certificate, you must complete a certificate clearance in the College of Business Dean's Office (BUS 200).

Certificate Outcomes	
1.	Outcome 1 **Theory and Practice** Work as a member of an information security and/or intelligence team and effectively integrate theories and practice in an ISI environment.
2.	Outcome 2 **Security Domain** - Demonstrate knowledge of concepts and methodologies of the principles of information security objectives and the information security lifecycle.
3.	Outcome 3 **Networks and Devices** Set up computer networks and peripheral devices, install and maintain software; demonstrate how to handle, transport, utilize and safeguard digital devices and information.
4.	Outcome 4 **Digital devices** Theorize ways digital devices could be used for security and criminal activity and collect and process digital information in support of an investigation or hypothesis.
5.	Outcome 5 **Digital Forensics** Demonstrate knowledge of concepts and methodologies of incidence response, cyber forensics (acquisition, preservation, analysis, and presentation of evidence) and the information security lifecycle including cyber laws, cyber crimes, incidence response, pre-incident preparation, detection, notification, initial response, strategic decisions, response, recovery, and reporting.

FORM D PROPOSED

Certificate Checksheet: Cybersecurity - Ethical Hacking

Ferris State University – College of Business

ACCOUNTANCY, FINANCE & INFORMATION SYSTEMS (AFIS) DEPARTMENT

Cybersecurity - Ethical Hacking Certificate - 12 Credits

STUDENT NAME: _____ **STUDENT ID#:** _____

PFX	CRSE#	COURSE TITLE (prerequisites shown in brackets ()	S.H.	GRADE	GR. PTS.
ISIN	306	Security Informatics (Sophomore Standing or Instructor Approval)	3		
ISIN	308	Principles of Info Security (ISIN 200 or Instructor Approval)	3		
ISIN	312	Applications of Information Security (ISIN 308 and ISIN 306 or ISIN 305)	3		

Choose one of the following:

PFX	CRSE #	COURSE TITLE (prerequisites shown in brackets ()	S.H.	GRADE	GR. PTS.
ISIN	200	Secure Digital Technologies	3		
HSCJ	310	Digital Forensics (ISIN 121 or ISIN 308)	3		
ISIN	335	Pen Testing and Cloud Security (ISIN 308 and ISIN 306 or ISIN 305 or ISYS 288)	3		
ISIN	409	Network Forensics & Analysis (ISIN 308)	3		
ISIN	430	Pen Testing and Mobile Security (ISIN 312 and ISIN 325)	3		

NOTE: No more than 50% of the credits in this certificate may be transferred from another institution, nor will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

Admission Requirements – Admission requirements for this certificate are identical to the admission requirements for the Information Security and Intelligence program at Ferris State University.

For more information, please call 231-591-2434 to make an appointment with the AFIS department head.

NOTICE REGARDING WITHDRAWAL, RE-ADMISSION AND INTERRUPTION OF STUDIES

Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the certificate which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

Note: A minimum 2.00 GPA is required in all certificate courses for completion of this certificate.

STUDENT SIGNATURE: _____ **DATE:** _____

ADVISOR SIGNATURE: _____ **DATE:** _____

AFIS DEPT. CHAIR/HEAD SIGNATURE: _____ **DATE:** _____

Certificate Outcomes	
1.	Outcome 1 **Theory and Practice** Work as a member of an information security and/or intelligence team and effectively integrate theories and practice in an ISI environment.
2.	Outcome 2 **Security Domain** - Demonstrate knowledge of concepts and methodologies of the principles of information security objectives and the information security lifecycle.
3.	Outcome 3 **Security Assessment** - Assess the security posture of computer networks and computer software; demonstrate how to identify security vulnerabilities, remediate vulnerabilities, and document the vulnerabilities.
4.	Outcome 4 **Digital devices** Theorize ways digital devices could be used for security and criminal activity and collect and process digital information in support of an investigation or hypothesis.
5.	Outcome 5 **Event Analysis** Recognize the potential for multiple explanations for events and information and be able to analyze and describe the accuracy of the information.

FINANCIAL AID FORM

FORM FIN
Effective Fall 2016

To be completed by the Director of Financial Aid (DFA). The DFA must return the original form to the Academic Senate Office to be inserted into the original proposal and a copy to the initiator (proposer). The DFA must respond within 10 business days of receipt of this form to insure that the form is included in the final proposal.

Failure to respond by 10 business days of receipt of this form is interpreted as support for this proposal.

Proposal Title: Click here to enter text.

Initiators: Gerald Emerick, ISI Faculty

Proposal Contact: Gerald Emerick **Date Sent: 2/7/2017**

Department: AFIS / COB **Campus Address: IRC 212L**

Director of Financial Aid Signature: Click here to enter text. **Date Returned:** Click here to enter text.

Please check all that apply:

☐ The new program is remedial as it prepares students for study at the postsecondary level. This program is not an eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is considered a preparatory program as it prepares a student for a given program, i.e., they do not meet the academic criteria to be admitted into the program. Student is only eligible for Federal Direct Loans for one year.

☒ The new program is a certificate program. Certificate programs are not eligible programs per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a teacher certification program where it provides coursework required for a professional State credential necessary for employment as an elementary or secondary school teacher, but for which the institution awards no academic credential. Students are eligible for Federal Direct Loans only at an undergraduate level.

☐ The new program is a teacher certification program that will award a certificate credential. Certificate programs are not eligible program per Federal requirements; therefore students in this program are not eligible to receive financial aid.

☐ The new program is a Bachelor Completion program; a two-year degree completion program that requires an associate degree or the successful completion of at least two years of college coursework as a prerequisite for admission. These are aid eligible programs and students may receive financial aid.

☐ The new program is a Master's, Professional, or Doctoral Degree/Major program that allows students to take some undergraduate courses where some deficiency exists. Please note, students are eligible to receive Federal loans for the program, but undergraduate courses will not be included in the total credit count to determine loan eligibility. Students must be half time (Graduate/Professional = 5 credits, Doctoral = 3 credits) in graduate level courses to receive Federal aid.

☐ The new program is an Associate's, Bachelor's, Master's, Professional, or Doctoral Degree/Major and is conferred upon graduation. Per Federal requirements, these are aid eligible programs and students may receive financial aid.

Please include the number of credit hours to earn the degree or credential being sought. This is required as it must be reported to the Department of Education as well as the National Student Loan Clearinghouse, regardless if students are receiving federal aid.

Credits Required to Earn Degree: The certificate is 12 credit hours

TO: All Persons Represented by the Academic Senate

FROM: Chuck Drake, Senate Elections Chair

SUBJECT: Senate Election Results

DATE: **March 29, 2017**

The following people from the indicated colleges and librarian/counselor units were elected to the Senate:

Health Professions	Emily Zyla, Antionette Epps, Gary Moore
Arts & Sciences	Mark Thomson, Sandy Alspach, Charles Bacon, Michael Berghoef, John Scott Gray, Daisy Daubert, Janice Weaver, Jennifer Johnson
Business	Kathryn Wolfer, Jean Inabinett, Larry Bajor
Education and Human Services	Vanessa Wyss
Pharmacy	Katie Axford, David Bright
Engineering Technology	Christiaan Desmond, James Rumpf
Librarians/Counselors	Melinda Isler
Optometry	Write-in declined, election TBA

The tally on the following pages indicates the number of votes received by each candidate and write-in candidates.

On behalf of the Academic Senate, we appreciate and thank all those who assisted with this election.

CD:ph

Health Professions – 3 vacancies	**Total Votes**
Emily Zyla	22
Antionette Epps	29
Margaret Wan	5
Emmanuel Jadhav	15
Gary Moore	17
Write-ins:	
Kathy Harlan	1
ARTS & SCIENCES – 8 vacancies	
Dan Cronk	35
Mark Thomson	40
Sandy Alspach	43
Charles Bacon	44
Michael Berghoef	48
John Scott Gray	43
Daisy Daubert	38
Janice Weaver	51
Jennifer Johnson	46
Write-ins:	
Scott Herron	1
Jim Nystrom	1
COUNSELORS/LIBRARIANS – 1 vacancy	
Melinda Isler	9
Write-ins:	
Stacy Anderson	1
BUSINESS – 3 vacancies	
Kathryn Wolfer	27
Write-ins:	
Jean Inabinett	8
Mark Brandly	1
Larry Bajor	2
Cheolwoo Lee	1
Andy Suhy	1
Carol Rewers	1
Gerald Emerick	1
Clay Dedeaux	1
EDUCATION – 1 vacancy	
Vanessa Wyss	14

Write-ins:	
Matt Wagenheim	4
PHARMACY – 2 vacancies	
Katie Axford	19
David Bright	19
Write-ins:	
Adnan Dakkuri	2
ENGINEERING TECHNOLOGY – 2 vacancies	
Khagendra Thapa	16
Christiaan Desmond	17
James Rumpf	22
Write-ins:	
Dave Murray	1
OPTOMETRY – 1 vacancy – No Nominees	
Write-ins:	
Phil Walling	2

Academic Senate Diversity Committee

April 4, 2017

1 Members (College, years remaining)

- Julie Alexander (RSS, 1)
- Adnan Dakkuri (PHR, 3)
- John Scott Gray (SR, 1)
- Hwee-Joo Kam (CB, 1)
- Steve Karnes (HP, 1)
- Nathan Leatherman (CET, 3)
- Mike Mendenhall (EHS, 2)
- Rebecca Sammel (AL, 1)
- Anil Venkatesh – Chair (OPT, 1)
- Eric Warner (AS, 3)
- Marie Yowtz (L/C, 1)
- Caleb Samborski (SG, 1)

2 Objectives

1. Serve as a liaison between organizations promoting campus diversity and inclusion, and the Academic Senate
2. Demonstrate leadership by guiding the Academic Senate in its response to current diversity related issues
3. Collaborate with FCTL to support training and development initiatives that focus on diversity and inclusion
4. Serve, in partnership with University Archives, as a repository for diversity and inclusion initiatives generated by faculty, staff, and students

3 Committee Activities

- We have been updating the Ferris online calendar with a wide variety of religious observances. We have also reviewed other sources of diversity-related event listings around campus.

  Recommendation: We have identified substantial duplication of labor in the posting of diversity-related events and observances at Ferris. The Diversity and Inclusion Office, Senate Diversity Committee, Office of Multicultural Student Services, and the College of Arts and Sciences are all currently collecting and posting diversity-related event information online, much of which is duplicated. In order to increase the visibility of this content, we envision a master calendar of diversity-related events that

can be synced directly to the Outlook calendars of faculty and staff on an individual, voluntary basis.

- The committee has made use of our reach across campus to identify co-organizers for diversity-related events, such as the Social Justice in STEM lecture in March that was organized by members of CAS and CET, and cosponsored by the Diversity and Inclusion Office. The committee further coordinated between CAS and CET by raising awareness of an upcoming CAS initiative in Grand Rapids middle schools. On the request of the CAS diversity committee, we inquired with FCTL about faculty training sessions to prepare for the initiative.

  Recommendation: We propose a review of the membership guidelines of the committee, with the objective of increasing our ability to serve as a liaison for diversity and inclusion issues and initiatives on campus. We would like to explore the possibility of membership representation from FLITE and various administrative bodies that are principally focused on diversity and inclusion. We would also like to set out reasonable guidelines for reappointment to the committee in order to encourage the development of longer term projects.

- The committee responded to reports of microaggressions among CET students by reaching out to Kaylee Moreno of the Center for Latin@ Studies. She expressed willingness to visit individual departments and give talks or workshops on diversity and inclusion.

  Recommendation: We would like to explore the possibility of similar training sessions for FSUS classes, either in person or from recording.

4 Next Year's Goals

- Improve visibility of online postings of diversity-related events.
- Expand successes of CAS-CET coordination to new cross-campus collaboration.
- Enhance offerings of diversity and inclusion training for students and faculty through collaboration with experts such as FCTL and the Center for Latin@ Studies.

Academic Senate Report

University Curriculum Committee
Chair Kemi Fadayomi
April 4, 2017

Proposal Number	Title	Action/Votes	Senate Action / Concerns/Reasons/Updates
17-068 MCC AS	Professional Writing Program Revisions	Approved 6 Support No other votes	
17-069 New Degree AS	Creation of a new Associate in Science (Natural Science) Program	Approved 6 support 1 abstain No other votes	
17-072 FTF PREQ	EDLA 476	Approved 6 Support No other votes	Pending current and proposed checksheet submission
17-074 Delete OPT	Delete BIOL 438 from Optometry	Hold	Support with concerns response
17-075 Add course OPT	Add Intro to Medical Record Keeping to Optometry	Approved 6 Support No other votes	Pending UGPC clearance.
17-076 HP MCC	HIT/HIM, HCSA Minor Program Change	No action! Previously approved as 17-022	Withdrawn?
17-078 AS ND	Bachelor of Science Degree Biochemistry	Approved 6 Support 1 Support with Concerns 1 Abstain No other votes	
17-079 AS MCC	Curriculum Changes to Secondary Education English Minor	Hold	• clarify additional graduation requirements on checksheet • Pick one of 3 titles for consistency
17-083 BU MCC	PGM Addition of HSMG 312 Course	Approved 6 Support No other votes	
17-084 BU MCC	Ski Resort Management Certificate Cleanup	Approved 7 support No other votes	

17-085 FTF-PREQ	NURS 750	Approved 6 Support No other votes	
17-086 FTF-PREQ	SCWK 510	Approved 6 Support No other votes	Pending current and proposed checksheet submission
17-087 FTF - PREQ	SCWK 520		
17-088 FTF-PREQ	SCWK 530		
17-089 FTF-PREQ	SCWK 540		
17-090 FTF-PREQ	SCWK 550		
17-091 FTF-PREQ	SCWK 560		
17-092 FTF-PREQ	SCWK 591		
17-093 FTF-PREQ	SCWK 592		
17-094 AS Delete Course	Removal of Social Work 501	Approved 7 support No other vote	
17-095 AS MCC	Change Outcomes for BSW Courses	Hold	Concern about outcomes
17-096 AS MCC	Bachelor of Science in Biology (Pre-Optometry Concentration) Minor Curriculum Cleanup	Approved 7 Support 1 Abstain No other votes	
17-097 BU NC	New Course – ACCT 200, Principles of Accounting	Approved 5 support No other vote	
17-098 AS ND	AA in Integrative Studies	Approved 5 support No other vote	

17-099 PH MCC	Doctor of Pharmacy Curriculum Revision	Hold	Update checksheet
17-101 BU MCC	Operations and Supply Management Program Revisions	Approved 9 Support No other votes	
17-102 MCC	Revise MBA Admission Requirements	Approved 9 Support	Pending receipt of Form B from UGPC and Pharmacy
17-103 New Course PH	New Elective – PHAR 465:Biosysthesis of Medicinal Natural Products	Approved 9 Support No other votes	
17-104 MCC BU	Marketing Program Pre-req Updates and Minor Curriculum cleanup	Approved 9 Support No other votes	
17-105 Certificate BU	ISI Cybersecurity Certificates	Approved 8 Support No other votes	
17-106 MCC EHS	DAGD Curriculum Tweaks 2017	Hold 8 – 0	PCAF requirement clarification with APAO

Other Business

Form B consultation concerns (see attached)

CAS College Committee concerns:

a. The Biology Department response to the Curriculum Consultation Form (FORM B) for a new BS Biochemistry degree proposal went far beyond the stated purpose of the form.
b. Proposal initiator is obligated to address those concerns resulting from “Do not support” or “Support with concerns” votes. But the response is “not directed back to the consulted department that raised those concerns”, but it is s “frequently (actually almost always)”, attached to the proposal and the proposal forwarded to the next level of approval.

UCC response and recommendations:

a. Form B was used for its intended purposes by Physical sciences to request “support for the proposal”; and Biology to express areas of concerns that may potentially impact faculty load and course scheduling. UCC recommends that concerns about any additional comments on the form be directed to Biology Department as this level of communication between proposal initiator and department they are consulting is out of UCC jurisdiction.

b. Regarding the response to “Do not support” or “Support with concerns” votes, UCC is clear in its expectations of how to respond at the department and college levels as indicated on Form A (p. 1) and pages 26, 27 and 33 (see copy below) of the UCC manual.

Term-by-Term plan for degree completion

In response to the committee’s request for the inclusion of a Term-by-Term plan in their proposal, the proposal initiator of the new Associate in Science, Proposal 17-069 stated that that they do not think that a Term-by-Term plan is needed for their particular degree. They believe that such a document will signal to the students that the program is not flexible. They also indicated that the **Term-by-Term plan** is not a requirement but a suggestion. In response, UCC noted that Term-by-Term plan for completion is required for all programs as stated on Form D and on p. 33-34 of the UCC manual. Our committee also discussed the advantages of the requirement for degree completion including its use as:

- An evidence (to both internal and external stakeholders) that the program can potentially be completed within the stipulated time.
- A guide for new students entering college so that they can see what courses they need to take and when they potentially could graduate.
- A guide for faculty.

Additionally, the committee noted that it has never heard any negative feedback in terms of submitting the document or even having the plans for students. At the end, the committee decided to keep the requirement and encouraged the program to discuss the flexibility of the program during student advising.