

NATURAL SCIENCES PROGRAM REVIEW
UNIVERSITY OF SAINT KATHERINE



submitted to Program Review Committee July 13, 2021

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INTRODUCTION

1. The University of Saint Katherine

The University of Saint Katherine (formerly Saint Katherine College, and hereinafter referred to as the “University”) was founded by Frank J. Papatheofanis, M.D., Ph.D. and incorporated on June 30, 2010 as a non-profit corporation in California. The University first received approval to operate in 2011, under the authority of the California Bureau of Private Postsecondary Education. It was accredited by the WASC Senior College and University Commission (WSCUC) in 2016 and is in good standing.

The University is the only independent Orthodox Christian liberal arts and sciences university in the English-speaking world. It is not part of a larger Orthodox organization. The University’s mission is “To provide a balanced education in the liberal arts and sciences, founded and rooted in the life of the Orthodox Christian Tradition – Inquiry Seeking Wisdom.” The full-time and part-time faculty, as well as non-instructional staff, seek to prepare students for lives of learning, faith, and action in the ever-changing 21st century by emphasizing the knowledge, skills, and attitudes that will serve students throughout their lives. The current strategic plan is summarized in a brochure at [University of Saint Katherine strategic plan brochure FINAL.pdf](#)

The University has offered the Bachelor of Arts (BA) and Bachelor of Sciences (BS) since its inception. The first 14 students began classes in Fall 2011. In Fall 2020, the tenth year, there were 78 new undergraduates, 160 returning undergraduates, and the first 11 graduate students in the newly approved Master of Arts in Organizational Leadership.

There are four undergraduate degree programs. The Bachelor of Arts in Arts and Humanities offers several concentrations including Art, English, History, Psychology, and Theology. The Bachelor of Arts in Business Management has no specializations at present. The Bachelor of Science in Kinesiology offers two concentrations, Exercise Science and Health Science. The Bachelor of Science in Natural Sciences offers three concentrations, Applied Biological Health Sciences, Biological Sciences, and Chemistry and Biochemistry.

2. Natural Sciences Degree Program

a. Brief History and Development

The Natural Sciences program began in 2011-12 with a single faculty member teaching introductory Biology, Chemistry, and Pre-Calculus Mathematics, courses that continue to be required of all undergraduates as part of the General Education curriculum.

By 2017-18, the first post-accreditation school year, 1 full-time faculty member and 11 part-time faculty members were teaching 27 different classes: 10 Biology, 10 Chemistry, and 7 Mathematics classes, some with more than one section during the year.

In 2020-21, 1 full-time faculty member and 9 part-time faculty members are teaching 31 different classes: 12 biology, 12 chemistry, 5 math, and 2 physics classes, some with more than one section during the year.

Between 2017-18 and 2020-21, the number of different courses per faculty member has risen from 2 to 3. This is due partly to a greater number of lab classes (lab classes are counted separately from companion lecture classes), and partly to an overall university strategy of increasing the number of part-time faculty who are readily accessible to students as they spend more time at the University instead of at other jobs.

The Department has had 4 Chairs: Geoff Bray (2013-2018); Gor Sarkisyan (2018; resigned due to sudden illness); Chistina Grobin (2019-2020); Tina Keating (2020-present). Dr. Keating, like Dr. Bray before her, also plays a larger role at the University as its Chief Academic Officer.

b. Current Status

Dr. Keating remains the Chair of Natural Sciences for the upcoming academic year. With two exceptions, all Fall 2021 courses have an identified faculty member who has taught the same or similar courses at USK before. New part-time faculty members are being sought for Human Physiology & Anatomy and for Neuroscience.

A review of courses scheduled for Fall 2021 and expectations for Spring 2022 reveal that:

- Biology offerings are augmented with a Human Physiology & Anatomy lab for both semesters of the 2-semester sequence instead of just one, in order to conform to expectations of most medical, nursing, and other health sciences professional degree programs. Most classes will be fully on campus, with limited use of hybrid and online delivery methods.
- Chemistry offerings are augmented with a Biochemistry lab, which has not been offered at USK since Fall 2017. At present all lecture classes are scheduled to be on campus, with labs online. The anticipated installation of fume hood that has already been purchased will allow some or all labs to be conducted on campus as well.
- Physics offerings remain the same, with delivery method TBD.
- Mathematics offerings remain the same, with all classes returning fully to campus after being a mix of on-campus and hybrid delivery during the 2020-21 academic year.

c. Future Plans and Expectations

Due to Dr. Keating's responsibilities as Chief Academic Officer, a dedicated Chair of Natural Sciences will be sought, to begin by Fall 2022.

USK anticipates that the new Applied Biological Health Sciences concentration will grow in size due to the abundant job prospects in the region, particularly if USK is able to integrate achieving health professions certificates into the overall college experience.

Biology is being refocused as a life science program, for students who wish to go straight into the workforce or pursue graduate work in Biology or a related field. It is likely to remain small until USK is able to offer more experiential learning, including fieldwork and internships. The COVID-19 pandemic began just after USK's first faculty meetings to identify experiential learning priorities, and further consideration has been delayed until the coming academic year.

Fully re-establishing the Chemistry concentration requires adding a hood in the current laboratory and adding a second laboratory so that two science lab courses can be taught simultaneously.. Alternatives are being explored.

THE SELF-STUDY

I. Defining the Educational Objectives and Mission Alignment

A. Relationship to Mission and Strategic Plan

The NS program is closely aligned with the Mission of the University as a liberal arts and sciences institution grounded in the Orthodox Christian tradition. Science courses are taught by faculty who gain inspiration from Jesus Christ, and in accordance with the principle that “the earth is the Lord’s and everything in it,” and accordingly the land and sea and everything that lives deserves our understanding, respect and care. By teaching the fundamentals of physical, biological, and mathematical sciences, students gain an understanding of the scientific concepts required to explain the functioning of the natural world. Knowledge, skills, and attitudes that will serve students throughout their lives, are a pivotal component of courses within the Natural Sciences program.

B. Institutional Learning Outcomes

The University’s Institutional Learning Outcomes (ILOs) are as follows:

1. Students communicate ideas clearly and concisely in both oral and written form (Articulate Communication Written and Oral)
2. Students develop a sense of inquiry rooted in critical thinking, research and analysis (Critical, Informed Inquiry)
3. Students engage in interdisciplinary approaches to learning that involve integrative thinking, collaboration with others, and the application of theoretical knowledge to a range of practical issues (Broad, Interdisciplinary Insight)
4. Students establish a specialized set of intellectual and/or technical skills applicable within their discipline (Specialized Intellectual Skills)
5. Students contribute self-reflectively to local communities and global society (Applied and Collaborative Knowledge)
6. Students gain an appreciation for the historical Christian faith and deepen their own spiritual life in an Orthodox Christian context (Enriched Christian Spirituality)

C. Alignment of ILOs and Natural Sciences PLOs

The Natural Sciences Program Learning Outcomes (PLOs) are as follows:

All Natural Sciences Concentrations

PLO1. Students will evaluate scientific information critically, using analytical reasoning and quantitative skills. (Analytic Evaluation and Quantitative Reasoning)

PLO2. Students will create experiments using scientific method. (Scientific Method)

PLO3. Students use reading, writing, and oral communication skills to prepare works of literary review and scientific research. (Written and Oral Communication Skills)

PLO4. Students use scientific knowledge, critical thinking ability, and methodologies to appraise complex problems outside of the scientific arena in other disciplines. (Application of Scientific Knowledge to Complex Problems)

Biological Sciences Concentration

Concentration-specific PLO5. Students evaluate foundational concepts of biology, including cellular, organismal and neurobiology. (Content Knowledge)

Concentration-specific PLO6. Students will implement and justify the use of basic techniques and equipment in biological investigation. (Practical Application)

Chemistry/Biochemistry Concentration

Concentration-specific PLO5. Students demonstrate a working knowledge of the three principal disciplines: biochemistry, organic, and physical chemistry. (Content Knowledge)

Concentration-specific PLO6. Students demonstrate technical understanding of fundamental wet laboratory skills, use proper laboratory safety protocols.(Practical Application)

Applied Biological Health Sciences

Concentration-specific PLO5. Students evaluate foundational concepts of human physiology, including cellular, organismal and neurobiology. (Content Knowledge)

Concentration-specific PLO6. Students will develop a fundamental understanding of human structure and function including the ability to relate the 11 major organ systems to their function(s) in the body.

Objectives in the areas of communication, critical thinking and collaboration are reached within several courses in the NS program. ILO 5 is achieved via school requirements and is also a focus of the Natural Science program. The Biological Sciences concentration has recently added a

Global Ecology course to aid in encouraging students to contribute self-reflectively to local communities and a global society. This application is encouraged in other NS courses, particularly in CHE100 where students design chemistry-based businesses in the context of a local and/or global society.

ILO #6 is addressed in many aspects of student life, and NS courses are taught by faculty who gain inspiration from Jesus Christ, and seek to inspire their students with the Christian view that the natural world and the human body are good, and that evolution and God are not contradictory concepts, whatever one may personally believe. By teaching the fundamentals of physical, biological, and mathematical sciences, students gain an understanding of the scientific concepts required to explain the creation of the natural world.

D. Key Findings and Recommendations

Key Findings	Recommendations
<p>1. Applied Biological Health Sciences and Biological Sciences are now the two new concentrations in the Natural Science degree program. The program is expected to grow due to the abundant job prospects in the region, particularly if USK is able to integrate achieving health professions certificates into the Natural Sciences program.</p>	<p>1.a. Identify certifications related to the health field such as phlebotomy, certified nursing assistant, and pharmacy technician.</p> <p>1.b. Incorporate certifications into the offerings of the Natural Science degree program.</p>
<p>2. The Institutional Learning Outcomes (ILOs) align with the Program Learning Outcomes (PLOs) particularly in the areas of communication, critical thinking and collaboration. Experiential learning opportunities also support ILOs and PLOs. Experiential learning priorities were being identified at the time the COVID-19 pandemic began. Further consideration has been delayed as some courses were online.</p>	<p>2.a. Identify and implement more experiential learning opportunities starting with the 2021-2022 school year.</p> <p>2.b. Provide professional development to help faculty to incorporate more experiential learning in their courses.</p>
<p>3. A Human Physiology & Anatomy lab was added for both semesters of the 2-semester sequence instead of just one, in order to conform to expectations of most medical, nursing, and other health sciences professional degree programs. Though the lab</p>	<p>3.a. Install a fume hood prior to the start of the Fall 2021 term.</p> <p>3.b. Add an organic chemistry lab course for the 2021-2022 school year.</p>

<p>space was adequate for this course addition, it is not sufficiently equipped for most chemistry lab courses. A fume hood and portable bunsen burners are needed to upgrade the current lab space.</p>	<p>3.c. Purchase portable bunsen burners for chemistry lab.</p>
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II. Core Commitment to Institutional Integrity, Sustainability, and Accountability

A. Demand for the Program

a. Recruitment and Enrollment

Student recruitment at USK has always been at the university or athletic team level and not by degree program or concentration. University leadership is aware of the need for a concerted marketing and communications strategy aimed at recruiting nonathletes in general and students with academic interests aligned with USK's offerings. In the meantime, USK has just approved its first social media campaign that will showcase students, alumni, and faculty members with different academic interests.

With the addition of the ABHS concentration, the intention is to increase enrollment with students interested in pre health studies. In addition, the intent of differentiating the BS concentration was to increase enrollment for those interested in pursuing both employment in science related fields and graduate studies in the biological sciences. The majority of NS students prefer the Biological Sciences concentration or the Applied Biological Health Sciences concentration with very few inquiries about the Chemistry/Biochemistry concentration. As a part of the recruitment process, inquiry regarding pre health programs is common. Many schools do not allow student athletes to major in an NS or pre health related field, and USK does allow athletes to major in NS. The personalized student services offered to students makes majoring in NS a viable option. This can lead to the successful recruitment of future NS students. Recruiters can be made more aware of this option for student athletes.

b. Internal program entrances/exits

Very few students who start in the Natural Sciences switch to a different degree program at the University. It is well known that at many universities, a large number of students start in the Natural Sciences, often with medical school aspirations, confront a "weed-out" class early on, and then switch to an entirely different major whether or not they have truly discerned their desired career path. This University's Natural Sciences program is committed to helping each of its students to be successful in the Natural Sciences if that is what they desire.

Some students decide that they want to be in a pre-med program instead of a pre-nursing program. These students change their major from Kinesiology to Natural Sciences with an Applied Biological Health Sciences concentration.

Exits - Some students exited the program as a result of being challenged by the academic rigor while maintaining their status as collegiate athletes. Student support services have since been implemented which included hiring a Director of Student Affairs who developed a student support program including free tutoring services. Though the pool of tutors has been sufficient, more science-specific tutors could be added to the tutoring program to readily support NS majors.

Dissatisfaction with the program may have led to exits as a direct result of a lack of adequate lab space for chemistry courses. Students were referred out to Palomar College for some chemistry courses.

c. Class Sizes

Introductory courses in Biology, Chemistry, and Mathematics are required of all USK students. Accordingly these classes are often large by USK standards, though small compared to the norm at other universities. Other Natural Sciences classes tend to be very small, which provides the opportunity for close faculty-student interaction, a great benefit whether the student is struggling or eager to learn more. The small class sizes do present a financial challenge as discussed in the next section, and clearly more students could be added to most classes with no sacrifice to the student experience.

[Class Size Distribution.xlsx - Google Sheets](#)

B. Costs and Revenues Associated with the Program

Most private nonprofit universities depend on endowments, investments, and grants to cover much of the cost of educating undergraduates (cite stats). At USK, by contrast, 90% of expenses are funded by tuition and other student revenues. Within this unusual context, Natural Sciences is currently less financially strong than the other degree programs, yet the most likely remedies would strengthen USK far beyond the confines of one degree program.

Student Revenues: This academic year's 14 full-time Natural Sciences students were charged the same tuition and mandatory fees as other undergraduates while receiving, on average, about \$2,000 more in institutional aid than students in the other 3 degree programs. This is because 11 of them received both an academic scholarship and an athletic scholarship, and the remaining 3 received a substantial athletic scholarship. On average, students in the other degree programs were less likely to receive both types of scholarships and the academic scholarships tended to be lower. Because academic scholarships are based on incoming GPA and not on declared major or other considerations, this is evidence that most Natural Sciences students have proven the ability and determination that USK would hope for in all of its students. Recruiting more nonathletes to Natural Sciences would make it possible to offer large academic scholarships without exceeding the average total scholarship amount seen in other degree programs.

Other Revenues: Natural Sciences at USK has received four degree program-specific grants (\$85,000 total) from the Ferrell Family Foundation and Pfizer to date, in addition to in-kind lab supplies from Pfizer, La Jolla Bioengineering Institute, and ThermoFisher. Should faculty and administrative time be liberated to pursue such potential funding sources, it might be able to solicit private gifts and corporate donations for lab equipment, and apply for grants for minority and women-oriented STEM programs to support a range of program improvements and scholarships.

Faculty Expenses: Natural Sciences faculty spending in AY2020-21 has been about 16% higher than other degree programs when adjusted for the total student credit-hours provided by the faculty for degree program and general education classes combined. The General Education classes tend to be relatively large by USK standards, balancing out much of the financial impact of the small class sizes in the degree program proper. Although it is arithmetically possible to separate out the cost per credit hour for degree program vs. general education classes, in practice some faculty members teach both types of classes in a single year or from one year to the next. and the mutual agreement of USK and the faculty member may rest on their ability to do some of both.

Rather than overanalyze historical data it is worth considering factors that would make the rate rise or fall in the coming years. First, hiring a full-time Chair of Natural Sciences, likely to be by Fall 2022, will increase the faculty cost as Chairs are paid more than part-time faculty teaching the same number of units. Second, the new pay scale for part-time faculty increases the differential between Natural Sciences and other departments because it rewards on-campus classes vs. asynchronous classes, and it is rarely desirable to deliver Natural Sciences classes asynchronously. Third -- which may balance the equation -- Natural Sciences' growth aspirations would increase class sizes rather than require many new classes. Finally, it may be possible to decrease costs by offering a few classes less frequently provided that it is accompanied by careful student advising so students are still able to complete degree requirements in a timely manner.

Other Expenses: USK currently spends negligible amounts on non-personnel expenses for Natural Sciences, and student lab fees help cover those costs. For the future, there would be some dedicated expenses if the Natural Sciences program were able to fund lab enhancements and field work or other hands-on scientific experiences unneeded by the other degree programs.

In order to put Natural Sciences on the same revenue and expense footing as the other degree programs, USK needs to recruit and retain more students in the Natural Sciences, especially nonathletes, find an appropriate full-time faculty member for the program who will teach an appreciable number of classes, fine-tune its part-time faculty hiring, and secure private gifts or grants to cover desired lab and program enhancements.

C. Program Inputs and Processes

a. Faculty, including Professional Development

The USK Faculty Support Specialist has been instrumental in providing resources and individual training for faculty. The transition to using ZOOM technology in our synchronous courses has been successful as a direct result of the training and resources provided by the Faculty Support Specialist. Regular professional development is offered to faculty addressing topics such as student engagement, academic integrity, technology tips, and instructional hours. Faculty

members are also given the option to choose topics to be covered at specific inhouse professional development events.

All in-house professional development events are now recorded and available on the USK Faculty Resource Page. Other resources and training such as LMS training, alternate forms of assessment, ZOOM, Populi, writing across the curriculum, asynchronous and hybrid instruction.

b. Administration and Administrative Support

NS Faculty members are encouraged to work with their department chairperson for subject specific assistance. The NS chairperson meets with department faculty at the beginning of the school year to go over general information. Individual meetings are held at the request of faculty members and/or the chairperson. NS faculty are encouraged to request classroom and lab supplies from the NS chair at least two weeks prior to a specific lab or classroom activity. The NS chairperson has an open door policy and encourages faculty to drop in for impromptu communications.

The CAO is also available for NS faculty direction and input. The CAO also has an open door policy and encourages faculty to drop in for impromptu communications. Conversations with both the CAO include topics such as subject specific content, teaching methods, school policy, and academic integrity.

c. Facilities and Technology

The science lab was outfitted with a new sink, balances, lab kits and general lab supplies. The lab was also made compliant with COVID-19 safety guidelines including a PA system, plexiglas barriers, and the ample PPE supplies.

Equipment and software from ADInstruments was purchased. The equipment and software can be used for multiple courses in the KIN and NS departments. This equipment allows for active/hands-on learning for students.

Two fume hoods have been purchased. At least one will be installed before the start of the 2021-22 academic year. Incidental equipment and supplies will also be purchased to permit more hands-on learning in biology and chemistry labs and less reliance on virtual labs.

It is likely, but not yet sure, that another classroom will be converted to a second lab to give more flexibility in Spring 2022 class scheduling.

There is much to gain from a move to a new campus with a permanent and complete science facility. Faculty have utilized the given indoor facilities and outdoor space to effectively meet the PLOs. A new, fully equipped science facility will allow the program to grow, add course offerings and major concentrations.

d. Course Offerings

A concentration in Applied Biological Health Sciences (ABHS) was added to the NS major resulting in a total of three major concentrations:

Applied Biological Health Sciences

Biological Sciences

Chemistry & Biochemistry

Prior to the addition of the ABHS concentration, the Biological Science concentration was recommended for those interested in higher level graduate programs in the medical field and also for those interested in professions in the field of biology. There was an emphasis on human body function, genetics, and neurology without addressing ecology, zoology and other biological sciences not related to human body function. Creating two concentrations allowed for two distinct paths: ABHS -- for those interested in pursuing the medical field, and BS -- for those interested in pursuing the field of life science/biology.

New courses: CHE215, CHE215L, BIO305L, BIO310L, CHE150, CHE150L, CHE105, CHE105L, CHE110, CHE110L

These courses were added to decrease the need to send students to other schools to take courses required for the major. The lab was equipped with wet-lab equipment for life science labs such as dissection, DNA extraction, slide preparation, microscope usage, cell culturing, and urinalysis.

D. Student Profile

Natural Sciences concentrators are highly diverse and demographically similar to the whole USK student body, a striking contrast to the national state of affairs (see [STEM's racial, ethnic and gender gaps are still strikingly large | Science News](#)). Natural Sciences concentrators are also financially needy on a par with the whole USK student body, and also likely to play sports. Of the 21 students who were pursuing a Natural Sciences concentration during AY2020-21:

- 52% were women
- 52% were Hispanic and 10% were Black.
- 24% came from outside California
- 48% were transfer students
- 57% were Pell Grant recipients during AY2020-21

71% of NS majors played on a USK sports team during the AY2020-21. NS is a major with significant academic rigor and it is recognized that some universities choose not to allow student athletes to major in a science field.

E. Key Findings and Recommendations

Key Findings	Recommendations
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<p>1. The intention of the addition of the ABHS concentration is to increase enrollment with students interested in pre health studies. The majority of NS students prefer the Biological Sciences concentration or the Applied Biological Health Sciences concentration with very few inquiries about the Chemistry/Biochemistry concentration. The new concentrations should attract new students to the NS program.</p>	<p>1.a. Make recruiters aware of upgrades made to the lab, and that most similar schools do not offer a degree in Natural Sciences, particularly a pre med/pre health concentration.</p> <p>1.b. Make recruiters aware of the ample student services available to NS majors.</p> <p>1.c. Verify that recruiters use this information to promote the Natural Sciences degree program.</p>
<p>2. Facility improvements have taken place and additional improvements will take place this summer (2021). Several new courses were added to decrease the need to send students to other schools to take courses required for the major. There is much to gain from a move to a new campus with a permanent and complete science facility, however, the time frame for this is unknown. In order to maximize the use of the current facility, a second, smaller wet lab is needed to give more flexibility in Spring 2022 class scheduling.</p>	<p>2. Convert a small existing classroom to a wet lab space allowing for greater flexibility in class scheduling, ideally for use in the Spring 2022 term.</p>
<p>3. Students in the NS program are highly diverse and demographically similar to the entire USK student body. This diversity is in contrast with the national state of affairs and is commendable. The majority of USK students are student athletes and NS is a major with significant academic rigor. It is noted that some universities choose not to allow student athletes to major in a science field. USK will continue to allow NS students to participate in athletics though the students may need additional support to succeed.</p>	<p>3.a. Increase Student Affairs and the NS Department systematic monitoring of the progress of NS students and intervene when necessary. Services should include tutoring, emotional health support, study skills and time management assistance.</p> <p>3.b. Publicize these personalized student services to attract students to the NS program as well as to maintain or increase the success of NS degree seeking students.</p>

III. Core Commitment to Student Learning and Success

A. Program Learning Outcomes

a. Overview of Assessment Plan, with reference to exhibits

The summative assessment plan for all NS concentrations is the Thesis presentation and paper. Students synthesize a senior thesis that is relevant to a specific scientific discipline in the form of a literature review. As a final act during the senior year of study, students will demonstrate their ability to communicate their written senior thesis to an audience with a formal oral presentation. Students are expected to adhere to professional presentation standards at all times and answer questions from a faculty panel.

Review process: A comprehensive review is at:

<https://docs.google.com/spreadsheets/d/1sjhorBw1MOXdUdOopOH6XDJb2N4WFYmP/edit#gid=1205741052>

b. Student Assessment/Achievement Methodology and Practices

C. Curriculum

a. Structure/Coherence of Instructional Program

In order to graduate, undergraduate NS students must successfully complete all required courses and credit hours as detailed in the Academic Programs chapter of the Academic Catalog (a minimum of 120 semester units). This includes 36 general education credits and 18 INT credits in addition to the NS Core and Concentration credits. All NS concentrations require entry level Biology and Chemistry courses as prerequisites for upper division NS courses. Graduation requirements also include the successful completion of a Senior Thesis Project.

Link to Course Offerings/Requirements:

https://drive.google.com/file/d/1cs_IBZmRiWjOYVHtEzWN-xu3qEnsfQrW/view?usp=sharing

[Course Requirements for Natural Sciences Concentrations.docx - Google Docs](#)

b. Cooperative Programs and Initiatives with other Academic Programs

USK has a partnership with Lake Erie College of Osteopathic Medicine (LECOM) as a part of the early acceptance program. Qualified students are granted provisional early acceptance to LECOM's School of Pharmacy, School of Dental Medicine or College of Osteopathic Medicine.

USK maintains a provisional acceptance and accelerated degree program for the Doctor of Chiropractic in partnership with Southern California University of Health Sciences (Whittier, CA).

Currently, USK does not have other cooperative programs and initiatives with other academic programs. The Department Chair is currently researching the possibility of partnering with another institution by adding a certification program for health related fields such as phlebotomy, nursing assistants, medical assistants and pharmacy technician.

C. Program Faculty

a. Advising

The Chair of the Natural Sciences Department meets at least twice a year with each Natural Science major. The academic plan and degree audit are discussed as well as post graduation options. The Chairperson has an open door policy and encourages students to drop in for advising outside of the scheduled advising sessions.

Tutoring is available for all students in need and is free of charge. Tutoring is organized by the Director of Student Affairs.

The small class sizes allow for faculty to get to know each student and to share their experiences with them. Faculty members have shared their work and education experiences with students, they have written letters of recommendation and they regularly advise students.

b. Teaching

The Natural Sciences faculty is made up of committed and qualified faculty members. Faculty members' CVs are at [Nat Sci Faculty CVs - Google Drive](#)

Student Course Evaluations (SCEs), conducted for most courses every semester they are offered, suggest that students strongly prefer some Natural Sciences courses and faculty members over others. The Chair, understanding that SCEs measure student feelings, not student learning, uses the SCEs not for decision making per se but to flag situations that merit investigation. Those investigations have led to decisions to reassign classes, team-teach a class, and alter the delivery method for the course.

At least one faculty development seminar is offered per semester. These seminars cover such topics as online education, assessment, differentiation, school policies, tips on how to use the LMS and writing across the curriculum. Teaching methodologies and general course navigation tools are addressed, however, subject specific training is not included.

Faculty have access to a Faculty Access Page on the school website. Resources on the Faculty Access Page include training, announcements, handbooks, library resources, and organizational resources.

Regular communication between administration and faculty takes place in the Monday Memo.

The president of USK has an MPH, an MD and a PhD in Biochemistry. He has extensive experience teaching science courses at USK and other universities and supports the growth and improvement of the current program. In addition, his ability to advise the NS on-campus faculty

during the pandemic has been informative and has led to effective safety measures for on-campus faculty and students. The USK President and the NS Department Chair communicate often and share a love of science with the immediate goal of increasing enrollment in the program. The Natural Science Department Chair is a STEM certified educator and has taught various science courses over the last 20 years. The Chair performs additional roles at USK and is also the Chief Academic Officer and the Health and Safety Officer.

c. Scholarship, Research, and Creative Activity

Though USK NS faculty members have extensive experience with research, this is an area in need of growth. NS faculty have published in the past, however, they have not published recently nor have they done so while representing USK. Two NS faculty members are interested in pursuing research and publication in the near future and the NS Department Chair will pursue publication this summer.

D. Credit Hour Policy and Monitoring

The academic year consists of a Fall and a Spring Semester, each of which is sixteen weeks long. The University uses semester credit hours as the measurement of all course work. The academic week runs from Monday through Friday. All scheduling and processing deadlines are assigned to specific weeks in the semester and are referenced as weeks one through sixteen. Credit and contact hours are outlined on pages 28 and 29 of the Academic Catalog.

Faculty members are responsible to attend a Faculty Orientation at the beginning of the school year as well as periodic training sessions throughout the school year. Credit hours are reinforced at each faculty training. In addition, credit hour information is available to faculty on the Faculty Access Page. If a faculty member has questions regarding credit hours, they are to contact their Department Chair or the CAO. In addition, the NS Department Chair monitors courses, and course syllabi to monitor credit hour expectation and progress.

E. Retention, Graduation, and Student Services

Student retention among Natural Sciences students appears to be improving markedly since 2017. One-third of the Fall 2017 and Fall 2018 cohorts combined had left USK by the 3rd semester, and nearly two-thirds by the 5th semester. By contrast, for the Fall 2019 cohort, only one-fourth had left by the 3rd semester and no more exits are expected by the 5th semester (Fall 2021). For the Fall 2020 cohort, no exits are expected by the 3rd semester. [HT to update these figures, and edit the conclusion if necessary, once Fall class registration is complete.] Although correlation does not prove causality, it appears that recent dedicated work to strengthen the concentrations, courses, pedagogy, and advising are having excellent results.

For information on Natural Sciences-specific student advising and tutoring, see section IIIC. Other services available to all USK students include mental health counseling, spiritual support, and a food bank. Experiential Learning and Career Services, a hallmark of many natural science programs nationwide, are in their infancy at USK,

Student Retention and Graduation by Fall Cohort (Count of Students)

Sem 1 to Sem 3 is from the beginning of first semester to the beginning of third semester.

Time Period	Fall 2017	Fall 2018	Fall 2019	Fall 2020
Initial Cohort	9	8	10	7
Internal-to-USK Entrance or Exit	0	0	-2	+1; -1
Net Cohort	9	8	8	7
Sem 1 to Sem 3:				expected
Graduation	0	0	0	0
Retention	5	6	6	7
Exit USK	4	2	2	0
Sem 1 to Sem 5:			expected	
Graduation	1	0	0	
Retention	3	2	6	
Exit USK	5	6	2	
Sem 1 to Sem 7:		expected		
Graduation	2	0		
Retention	2	2		
Exit USK	5	6		
Sem 1 to Sem 9:	expected			
Graduation	4			
Retention	0			
Exit USK	5			

F. Disciplinary, Professional, and Community Interactions

NS faculty have access to two USK Board of Trustees members who both have strong backgrounds in the sciences. Both members have agreed to speak to classes, answer student and instructor questions and to share their expertise with the Natural Science Chair.

Students are invited to apply for an internship with the Red Cross. Sophomore science majors are encouraged to apply and to participate in organizing a blood drive. Students are taught to educate others about the importance of blood donation and the risks of blood shortages.

Faculty members have relationships with and connections to research institutes and medical personnel, and have inquired about utilizing these connections to benefit USK NS students. This includes field trips to science labs, and on campus and virtual guest speakers. The pandemic has

made this challenging, however, some faculty have plans to utilize these connections in the future.

G. Post-Graduation Outcomes and Alumni Satisfaction

USK has 12 alumni of its Natural Sciences program, out of 118 alumni overall. 10 are women; 2 are men. Ethnically, they are remarkably diverse: 5 are White, 3 Hispanic, 1 Black, 1 Asian, and 2 Two or More Races including Native Hawaiian or Other Pacific Islander. USK will gain 2 more Natural Sciences alumni at the May 2021 commencement, and they round out this diversity as 1 is American Indian and the other is a United Kingdom citizen of Middle Eastern descent.

Post-graduation outcomes appear to be strong given that just one of the alumni graduated in 2015, one in December 2018, and the rest in 2019 or 2020.

15 alumni, including the 2 who graduated in May 2021:

- 6 are in graduate school: Two students are seeking science related teaching credentials and three are pursuing medical fields (Doctor of Osteopathic Medicine, PharmD, Physician Assistant, and doctoral level studies in Chinese medicine).
- 3 are working in science or healthcare (biotech researcher, veterinary assistant, veterinary technician)
- 2 are working in fields closely related to science or healthcare (natural products, social services)
- 1 is serving in the U.S. Navy, with the role unknown but possibly related to science or healthcare.
- 2 are working in unrelated fields where a science education is still useful (baseball coach, natural foods-oriented grocery)
- About 1 we have no information as yet.

USK has just received results of its first alumni survey in several years, conducted through USK's new membership in the Higher Education Data Sharing consortium HEDS).

Benchmarking information that will make the data more meaningful will be available in August 2021. Responses from the 5 Natural Sciences alumni who responded to most questions show high satisfaction with the teaching and intellectual challenge at USK, and more modest satisfaction with how their education prepared them for career and further education. This appears to be a pattern across the alumni responses in general. More results will be appended to this report as they become available.

In addition to benchmarked surveys, USK hopes to start building an Alumni Affairs program next year, which should make it easier to track student outcomes and offer encouragement or assistance as appropriate.

H. Key Findings and Recommendations

Key Findings	Recommendations
<p>1.The Natural Sciences faculty is made up of committed and qualified individuals. The president of USK has a PhD in Biochemistry, an MPH, and an MD. He has extensive history of research and publishing and experience teaching science courses at USK and other universities. He is supportive of the Dept. Chair and the NS department. The Dept. Chair and NS faculty communicate regularly and have a positive rapport. In addition, NS faculty are supported by open access to a Faculty Access Page on the school website with resources, training, announcements, handbooks, library resources, and organizational resources. Though USK NS faculty members have experience with research, this is an area in need of growth. Two NS faculty members are interested in pursuing research and publication in the near future and the NS Department Chair will pursue publication this summer.</p>	<p>1. Provide training and support in the area of research.</p>
<p>2. Student retention among Natural Sciences students appears to be improving since 2017. Responses from Natural Sciences alumni who responded to most questions show high satisfaction with the teaching and intellectual challenge at USK with modest satisfaction with how their education prepared them for career and further education</p>	<p>2.a. Collaborate with USK administrators and faculty across disciplines to strengthen schoolwide Career Services in the areas of graduate school, career training, and career placement</p> <p>2.b. In the short term, hire a consultant to provide Career Services specifically for NS students.</p>
<p>3. USK has a partnership with Lake Erie College of Osteopathic Medicine (LECOM) as a part of the early acceptance program. Qualified students are granted provisional early acceptance to LECOM's School of Pharmacy, School of Dental Medicine or College of Osteopathic Medicine. USK maintains a provisional acceptance and</p>	<p>3. Continue to research and subsequently implement additional articulation agreements or other partnerships with graduate level schools for students who graduate with a degree in NS.</p>

accelerated degree program for the Doctor of Chiropractic in partnership with Southern California University of Health Sciences (Whittier, CA).USK also has an articulation agreement with the University of San Diego for teaching certificates, which may include a specialization in science education.	
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IV. Core Commitment to Quality and Continuous Improvement

A. Comparison with Similar and Aspirant Programs

Institutional Research identified 53 American liberal arts colleges and universities that are a) private nonprofit, b) primarily undergraduate, and c) had fewer than 400 undergraduates in 2019 without being seminaries or having another highly specific educational focus. The full-results of a study of their Natural Sciences degree programs are at [exhibit x].

Combining two financial metrics, 27 of the 53 schools were informally designated as lower-resource schools. It appears that none of these schools offers a Bachelor's degree associated with a major, concentration, or the equivalent in Biology. (It is possible that some of these schools do offer a Biology concentration but choose not to advertise it on their websites, which would be a statement in itself.) Some of these schools are formerly dedicated Bible schools; others are essentially Career Colleges that may have some sort of pre-health major but not a bona fide Biology degree program; for the remainder there is no obvious explanation other than resource limitations. Since USK's own finances put it in this lower-resource category, it seems that USK is alone among its peers in offering a Biology concentration.

The remaining 26 universities in the group have at least modestly more resources to work with. Nonetheless, it appears that 14 of them do not offer a Bachelor's degree associated with a major, concentration, or the equivalent in Biology. Like the lower-resource schools, they tend to have a distinct religious identity, be career colleges, or have closed.

The 12 that offer Biology, and in some cases also Chemistry, are USK's aspirational schools for Natural Sciences. While these schools are extraordinarily diverse, and website details of their Natural Science program offerings are usually sparse, certain themes emerge:

- **Connection to University Mission:** Five of the Elite 12 are current or historically women's colleges or HBCUs for whom it is part of their mission to offer opportunities in historically male-dominated areas of study. At least three of the others have a mission closely tied to experiential learning, to which Biology lends itself easily.
- **Connection to Communities:** Many of these schools leverage facilities and opportunities in the community for lab experiences, internships, etc. Some have gotten grants, received gifts, offer study abroad programs, and/or participate in science organizations.
- **Connection to Nature:** A number of the schools opportunistically leverage the natural environment, whether on or off campus, in interesting ways, from marine science to parks, forests, bird nesting grounds, and horse stables.
- **Answering Implicit Doubts:** Many of the schools tout their small size as an advantage in science education. Some stress personalization of advising and/or curriculum. Some emphasize the diversity of their students. A few offer profiles of students and alumni who are progressing in science careers.

B. Unique Features at University of Saint Katherine

The NS degree program is unusually small with much personal attention available. Positive relationships between faculty and students naturally form throughout the semesters given the limited number of students and faculty. Faculty members are able to mentor students and advise them in their fields of study.

The pandemic resulted in courses being taught synchronously via Zoom. Virtual labs were utilized in addition to lab supplies being sent home to students. Faculty adapted to the online environment quickly and with great proficiency. The County later allowed science courses to be taught on campus. When that happened, faculty taught on campus and via Zoom. Teaching both at the same time was challenging, yet successful. Some classes met in person this Spring when most others did not due to pandemic.

C. Input from Local Employers and Practitioners

The directly-communicated perspectives of local employers and practitioners in the sciences and healthcare will be a valuable addition to this program review. Due to both the COVID-19 pandemic and the intention to make certain improvements to lab facilities and related pedagogy immediately after this program review, it was decided to delay a focus group discussion until after the Fall 2021 term has begun. Rather than delay completion of the program review, the results of the Fall 2021 focus group will be appended, shared with the Program Review Committee and the Academic Senate, and the Memorandum of Understanding will be amended if appropriate.

D. Key Findings and Recommendations

Key Findings	Recommendations
<p>1. The NS degree program is unusually small with much personal attention available for each student. Positive relationships between faculty and students naturally form throughout the semesters allowing the opportunity for faculty members to mentor students and advise them in their fields of study.</p> <p>USK recruiters may not be fully aware of the benefits of a small NS program. The availability of faculty and the fact that NS programs at similar sized institutions are nonexistent. This is an excellent tool for</p>	<p>1. Communicate with athletic recruiters and the Admissions Dept about the benefits and uniqueness of the NS degree program.</p>

<p>recruiting thereby increasing interest and enrollment in the program.</p>	
<p>2. It appears that IHE of similar size and financials do not offer Bachelor’s degrees associated with a major, concentration, or the equivalent in Biology. USK is an anomaly in that it offers a degree in NS with 2 active concentrations with graduates both working in the field of science and studying science at the graduate level. Aspirational schools model admirable methods which include offering experiential learning, connection to communities, connection to the natural and local environments, and an expression of their small size as an advantage in science education.</p> <p>The location of USK lends itself to a connection with nature similar to the actions of other smaller IHE with active science degree programs. The local environment in the USK general area includes beaches, the ocean, lakes, streams, nesting grounds, and abundant flora and fauna. In addition, the county life science industry is active and abundant.</p>	<p>2.a. Begin to leverage the regional natural environment and life science/health industry for study, experiential learning, field trip opportunities and observation.</p> <p>2.b. Provide training to Natural Science faculty in how these methods can be introduced.</p>
<p>3. The challenges faculty encountered while teaching both via Zoom and on campus were ongoing. The students participating via Zoom could not always see what the instructor was doing. In addition, many students opted for the Zoom option even though class was meeting on campus.</p>	<p>3. Starting with Fall 2021, subject to any County Health Orders, utilizing a live Zoom feed should not be an option for students. Zoom can still be utilized by faculty to record lectures and meet with students and other faculty, however, it should not be used as an alternative to on campus classes.</p>
<p>4. Local employer and practitioner voices have been insufficiently included in the Program Review process.</p>	<p>4. Convene a focus group of local employers and practitioners during the Fall 2021 term, subject to any constraints posed by County Health Orders. Append major findings to the Program Review and amend recommended actions in the MOU as appropriate.</p>

V. Summary of Findings

The Natural Science program's current status may be summarized in terms of Strengths, Weaknesses, Opportunities, and Threats (SWOT).

Strengths

The Natural Science Department has committed and qualified faculty including the USK President as well as the current CAO. They both have significant interest in the field of science and both have taught USK science courses. Their support has led to open communication about science content as well as the implementation of successful online science courses during the pandemic. The NS degree has resulted in some USK graduates working in the science field or pursuing graduate degrees in the field of science. In addition, USK currently has an early acceptance agreement with a medical school. The NS program has changed based on the needs of students as they prepare for graduate study or career placement in a science field. The addition of the Applied Biological Health Sciences concentration not only meets the needs of current students, it also can be used as a recruiting tool for future students.

Weaknesses

The most notable weakness is the lack of labs, laboratory equipment, and laboratory space on campus. This has led to sending students to other colleges to complete courses in chemistry. It has also led to temporarily suspending the Chemistry/Biochemistry concentration. Some student athletes have attempted the NS program but the rigor and time requirement was greater than expected as student athletes attempted to balance academics and athletics. The program would benefit from a marketing plan with a focus on the NS program.

Opportunities

A new campus with new lab space and equipment would greatly benefit the NS program allowing students to remain at USK to take the advanced chemistry courses. This would also lead to the hiring of new faculty with diverse backgrounds. Additional articulation agreements with graduate universities would benefit the students in the NS program as would certification programs such as phlebotomy and certified nursing assistant programs. Utilization of the natural environment such as the desert, the ocean, lakes and lagoons would increase the amount of experiential learning opportunities as would becoming part of the rich local science community including but not limited to healthcare organizations, biotechnology and pharmaceutical companies. Other opportunities include involving alumni in one-on-one mentoring, involving students in science-oriented honor societies and scientific associations with undergraduate arms, and seeking out grants and designated gifts.

Threats

The most obvious threat to USK's natural science program is the difficulty in attaining scale under current conditions. Other colleges and universities in the region offer bigger and better lab

facilities, which are easy to admire, whether or not the actual education is better or worse, which is much harder to judge.

Financial realities from the student's and parent's perspective must also be considered. California's public community colleges are very inexpensive and they offer a well-known pipeline to the CSU and UC systems. Students who realize that they will want or need a graduate degree to attain their desired careers may balk at accumulating college debt that does not immediately translate into a well-paying job.

VI. Program Review Themes for Future Inquiry

Search out more information on the natural science programs at very small schools that do offer Biology concentrations ,and then engage directly with these colleges as appropriate. Bryn Athyn College of the New Church, in a Philadelphia suburb, may be a particularly good model to study as it has a Christian mission, leverages the natural environment, offers internships, and has a first-rate website. East-West University in Chicago might also have helpful perspectives as its mission includes serving an ethnically and financially diverse student population, lacks a traditional campus, and is a mere forty years old.

External Reviewer Responses

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Component A - Mission and Context

Please review and evaluate the program's mission and purpose. Discuss the need for the program within the context of higher education and evaluate its apparent contribution to the academy and society at large. Where appropriate, identify ways for the program to improve its relevancy.

The Natural Sciences Program is an essential part of the mission of the University of Saint Katherine, both as a liberal arts and sciences university and as an Orthodox Christian institution. As a liberal arts and sciences university, it contributes to the general education program in providing the exposure of students to the natural sciences, and also to the further scientific education of those students in the program itself, equipping them to pursue careers in the sciences upon graduation. As an Orthodox Christian institution, education in the natural sciences is a paramount, as it provides students with the opportunity to study God's creation, and to become better stewards of it.

The Program Learning Outcomes of the Natural Sciences Program fit well in the context of the Institution's Learning Outcomes, as well as matching up with the Outcomes of similar programs at other institutions of higher learning. I would suggest that the concentration specific PLOs might be adjusted such that the parallels between the first two programs (Biological Sciences and Chemistry/Biochemistry) would be continued into the third (Applied Biological Health Sciences). That is, PLO5 in each case is concerned with content knowledge, and PLO6 in the first two is concerned with practical application, while in the ABHS concentration, both appear to be focused on content knowledge; conducting or outlining a basic health screening might be a good practical application for this concentration.

Identification of certifications which may be incorporated into the ABHS program would be very beneficial to attracting students to this program as well as giving them a tangible skill upon graduation. Addition of both lab facilities and experiences will benefit students of all concentrations as well as the institution as a whole, and should be given a high priority in the furtherance of the program.

Component B - Faculty Characteristics and Qualifications

Based on all the evidence and responses provided in the program review report, provide a summary analysis of the quality and quantity of faculty associated with the program. Identify any needs related to faculty that impact delivery of a high-quality program, and identify any gaps or weaknesses that should be addressed.

The Natural Sciences Program is fortunate that the President of the University is qualified to teach in the program, and that the Chair is also the Chief Academic Officer, ensuring support for and understanding of the department among the administration. There appears to be a good diversity among the faculty, as well as a qualified faculty. One area that could be added to would be a faculty member specializing in organismal biology or zoology or botany, as the current faculty are focused on the biochemistry and molecular biology end of the field. This may not be crucial to the program as it stands now, but with future growth, there may be students whose career goals need more of an emphasis in that area.

Review and comment on the scholarship of the faculty. Identify the degree to which scholarly production aligns with the expectations of the degree level of the program offered (undergraduate, master's, doctoral). Where appropriate, suggest improvements that may be necessary to increase the quality of scholarship produced by the faculty.

It is noted in the report that publication is an area in need of growth for the program, and it is admirable that faculty members will be seeking publication in the near future, however, with an undergraduate program, research must be balanced with teaching and advising. It would also be beneficial if students are able to be brought into the research process, where possible, enhancing their academic learning experience. Thus I applaud the desire for professional contribution to the discipline in this way, but would urge that care be taken that it does not detract from the quality of instruction and relationship with students that has been part of the program to this point.

Component C - Quality of Curriculum and Student Learning

After reviewing the program's curricular offerings, student learning outcomes (SLOs), and curricular map, characterize the quality and appropriateness of the program's curriculum for meeting the learning outcomes expected of students within this discipline. Identify any needed changes to the curriculum or to the SLOs that would result in an improved program.

The curriculum of the Natural Sciences Program has the breadth and depth necessary for the Learning Outcomes as outlined, and also for preparation for career/further education goals within each concentration area. One thing that did surprise me within the Biological Sciences concentration was the requirement of Biochemistry without the preparation of any Organic Chemistry courses. Perhaps the requisite background knowledge is covered within the General Chemistry sequence, or is provided in the beginning of the Biochemistry course. We have, on occasion had to have a student take these courses out of sequence (Biochemistry before Organic Chemistry) or concurrently, but it always requires some extra instruction for the student.

Component D - Student Enrollment and Success

Based on data and responses provided by the program, summarize and evaluate the effectiveness of the program's recruitment and retention efforts as it relates to enrolling and graduating students who fit the mission of the program. Identify any areas in need of improvement for producing successful students, especially as it relates to meeting the needs of diverse learners.

Small numbers make it difficult to draw conclusions (we have the same problem at our institution), but it does certainly appear that the retention numbers are on an upward trend, and while the numbers for the first two cohorts are discouraging (especially Sem 1-5 for the Fall 2018 cohort), if the expected numbers become reality, this could well be issues with a new program getting settled in, and the changes made over these initial years will have paid off. It would be encouraging to see a rise in the number in incoming cohorts, the recommendations stated in II. E. 1 and IV. D. 1. of the Review will be very important in addressing this.

Component E - Academic Opportunities and Class Size

Using the evidence provided, discuss the trends in the program's class sizes and, if relevant, the impact on student learning and program effectiveness. When applicable, comment on areas in need of improvement as it relates to academic opportunities provided by the program.

Class sizes in general are small (<25) which allows for good, tailored instruction and interaction between students and professors. The upper division courses are quite small, and this is great for the ability to work one on one with students and making sure that the entire class is learning, however it can be problematic for cost effectiveness both in terms of professor salaries and lab supplies – this is primarily the case for class sizes of 5 and under. One possible solution to this until the growth of the program supports these courses better, would be to offer some of the upper division courses every other year rather than every year. This solution does bring with it the problem of sequencing the courses correctly for each student so that they are able to complete the program in a timely manner, but it is workable if care is taken to ensure that students take courses with that in mind. In addition, the cost of smaller upper division courses could be offset by larger lower division courses, but again, this comes with the problem of less individualized instruction for those lower division courses, and so it must be balanced as much as possible. Often the lab setting gives opportunity to engage with students, and the model that USK is using of lecture professors also teaching labs is a good one to allow potentially for larger lecture classes to be broken into more than one lab section, as needed. With this, one lecture section could potentially grow to a size of 40 or more, while keeping the lab sections to 25 or less.

Component F - Student and Constituent Feedback

Analyze the department/program's overall effectiveness at utilizing student, alumni, and supervisor feedback as part of the assessment process. How well does the program solicit and respond to feedback, as well as communicate results of program review to its constituents, especially its current students? In what ways can the program improve in its use of constituent feedback?

The contributors and evaluators of this Program review show an openness to feedback and a cooperativity in assessment. It is also admirable that benchmarking in surveys is being pursued. It does appear that small numbers, especially due to the youth of the institution and program, make student and alumni feedback more difficult to glean good information from, but as the program grows and matures, this will be improved. It would be a good idea to publicize the results of this program review to students and alumni, especially in regards to major changes being made as a result of it.

After reviewing the Multi-year Overall Assessment Plan of the program, please evaluate the quality of the plan, including the appropriateness of the evidence used to assess student outcomes. Comment on any areas needing improvement related to outcomes assessment.

The summative assessment (Senior Thesis Project) is very similar to what we use at SDCC for a summative assessment of our Biological Science Majors, and as such, I believe it is a good measure of the ability of students to search the professional literature, write a professional review, and make a professional presentation, all necessary components of their learning in this area. However, we also utilize a comprehensive exam (the Major Fields Test put out by ETS) to measure the content learning that has taken place over a broader knowledge base, and I think something like this might be beneficial to this program as well. In addition, it may be beneficial to establish other assessment points throughout the program to assess progress towards the various outcomes at an introductory and developmental level as well as at the final point of the program.

Component G - Faith Integration

Evaluate the program's commitment to the integration of faith and learning. When appropriate, identify areas in need of improvement.

The program and its faculty seem to be very committed to the integration of faith and learning, as exhibited by the curriculum and the classes I was able to observe. However, this commitment is not evidenced in the Program Learning Outcomes (though it is present in the Institutional Learning Outcomes). It may be that adding an outcome regarding bioethics or stewardship would be appropriate.

Component H - Resources and Institutional Capacities

Comment on the internal and external resource allocations provided to the program, including University resources that support the program (e.g., University library, financial aid, student or faculty housing, etc.), as it relates to the program's enrollment trends and growth projections. In what ways can the program better allocate or acquire resources?

As the program grows, it will be crucial to add more lab space. The recommendation in II. E. 2. Of the addition of a second small lab will be a good step in that direction and will likely be adequate for the next several years, though, as mentioned in II. C. c. a more complete dedicated science facility would be more advantageous. Until that is possible, creative scheduling of lab courses may be possible – typically lab courses are scheduled in afternoons and evenings, which can be problematic for athletes, so scheduling of labs throughout the day may be beneficial.

Summary Conclusions and Response to Program's Goals and Recommended Action Steps

Respond to the summary conclusions provided by the program and identify any additional findings from your own analysis of the program. Include a response to the program's goals and recommended action steps, identifying any additions or modifications that you deem appropriate to that list. Feel free to add any comments that further clarify your assessment of the program.

The format of the summary conclusions (SWOT) is an excellent way of presenting these conclusions. In regards to the strengths, I would agree with what is presented, and add to it the care and dedication of the faculty towards the students that is evident in their teaching. Under weaknesses, I would agree that a top priority must be to add lab space in order to avoid sending students elsewhere for labs, and also that there is a great difficulty in balancing coursework and athletics (especially labs). One thing that we have done at SDCC is to have “open lab” times where a lab instructor is available to help students make up labs that are missed due to athletic events; with the structure at USK where professors teach their own labs, this might be more difficult, but might work well if some office hours are held in the lab instead of the office. As far as opportunities, pursuing more partnerships (internship opportunities, agreements with post-graduate institutions, etc.) would be a key avenue to enhance student learning and entrance into career paths. I believe that the threats identified are certainly formidable, but if recruiters focus on the unique features of the institution and program, often students and parents are willing to endure the extra cost, when extra value is understood. Recruiters need to emphasize the benefits of a small program as well as a small institution, the agreement with LECOM, and the spiritual aspect of the University as unique benefits of this program and institution.