
**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

Item F.1. Grambling State University's request for approval to offer a Bachelor of Science in Cloud Computing.

EXECUTIVE SUMMARY

Grambling State University (GSU) is requesting approval to offer a Bachelor of Science (B.S.) in Cloud Computing. The Letter of Intent was approved by the Board of Supervisors for the University of Louisiana System in October 2019 with subsequent approval granted by the Louisiana Board of Regents in January 2020. Letters of support from the Cyber Innovation Center, General Dynamics Information Technology, CenturyLink, and Louisiana Economic Development accompanied the proposal.

The proposed degree will prepare graduates who have the skills that are needed to address growing workforce needs in cloud computing. A September 2019 press release published by Businesswire highlights components of a study that was conducted by Technavio. The release indicates the global cloud computing market is on target to grow by \$190.32 billion between 2019 and 2023. The predicted growth is attributed to businesses readily adopting the use of cloud computing. Close to 40% of that growth is expected to occur in North America. Completers of the proposed program will have acquired competencies that will support success in the workplace in each of the three major components of cloud computing: Software as a Service (SaaS), Infrastructure as a Service (IaaS), and Platform as a Service (PaaS). Cloud computing provides platforms/services in the cloud to individuals and companies that support performing specific tasks. This allows companies to reduce cost associated with data storage, and upgrade/maintain certain hardware and software.

In summer 2019, a GSU team participated in a workshop facilitated by Amazon Web Services (AWS), one of the leaders in cloud computing. This organization has an initiative that focuses on cloud computing called Amazon Web Services Educate. The *Cloud Degree Initiative* is a collaborative effort between AWS Educate and educational institutions with a purpose of developing academic and workforce programs that prepare students for careers in cloud computing. AWS Educate provides a large number of resources to education partners at no cost. These resources include the following:

- Guidance in building an educational institution's degree programs in Cloud Computing to ensure that the program outcomes align with the skills necessary to prepare a student for AWS industry certifications and employment in the field of cloud computing.

- Access to curriculum resources – including syllabi, instructional content, hands-on activities and assessments – that support student learning in cloud computing.
- Access to content to support professional development and technical training for faculty members who will deliver program coursework.
- AWS Promotional Credit to ensure that students have an opportunity to practice and apply their knowledge using the AWS console.
- Access to AWS Educate Job Board, which contains cloud-related job postings from Amazon and their customers and partners, to help match Educate members with employers looking for cloud-skilled talent.

Amazon Web Services Educate is partnering with many domestic and international colleges and universities to assist in the building of cloud computing academic programs. Grambling is part of this initiative via a partnership that has been established by the state of Louisiana and a partnership established for Historically Black Colleges and Universities (HBCUs). These partnerships are being used to develop a unique degree program at GSU that will focus on current trends in cloud computing. The proposed degree program will not only meet the workforce needs of AWS, but also meet the needs of other emerging leaders in cloud computing such as Microsoft Azure, Google Cloud Platform, and IBM.

Courses required of the 120 credit hour program are organized into five categories: cloud computing, computer science, cybersecurity, mathematics and science, and general education. In addition, an internship course has been developed to support the cloud computing degree. The internship will support students gaining valuable hands-on experience in the workforce that will enhance their cloud computing skills and placement in jobs after completing the degree. Those who complete the degree will have the capability to:

- Analyze complex cloud-related problems, and identify and define the requirements appropriate to its solution.
- Design, implement, and evaluate cloud-based system, process, component, or program to meet desired needs.
- Communicate effectively with a range of audiences.
- Recognize professional responsibilities and make judgments based on legal, ethical, and social principles.
- Identify the need for and engage in continuing professional development.
- Use techniques, skills, and tools necessary for cloud computing practice.

In addition, students have the ability to acquire a workforce credential, an AWS Cloud Practitioner Certification. AWS Educate provides at no cost three online courses that cover the content associated with the Cloud Practitioner Certification Exam. This certificate validates that the holder has knowledge and skills that demonstrate an overall understanding of the AWS cloud. The training associated with preparing for the certification exam will be aligned with the content covered in specific courses that will be required the freshman year.

The proposed program does not duplicate or compete with any existing degree programs offered by a public university in Louisiana. Public universities in the state offer computer science related degrees that provide concentrations in cloud computing; however, an undergraduate degree program in cloud computing is currently not available. Approval was recently granted (August 2019) by the Board of Regents for Delgado Community College to offer an Associate of Applied Science in Cloud Computing; the program is aligned directly with competencies identified by AWS and with the AWS Educate initiative (all other LCTCS colleges will follow). Grambling plans to work with the community colleges to develop 2+2 programs.

The University projects an initial cohort of 20 students in YR1 with that number increasing to 30 by YR5. While existing faculty and infrastructure in place will support the proposed program, successful implementation and sustainability will require two new faculty as well as a new laboratory. Anticipated expenditures will be offset by tuition and fees and Title III funding. The proposed program will complement GSU's computer science and cybersecurity programs. What is proposed is a natural extension for Grambling as it works to build cutting-edge technology based programs that meet workforce needs of the state and the nation.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves Grambling State University's request for approval to offer a Bachelor of Science in Cloud Computing.



February 6, 2020

**MEMORANDUM TO THE BOARD OF SUPERVISORS
OF THE UNIVERSITY OF LOUISIANA SYSTEM**

**SUBJECT: REQUEST FOR APPROVAL OF A PROPOSAL TO OFFER
THE BACHELOR OF SCIENCE IN CLOUD COMPUTING**

Grambling State University respectfully requests approval of a proposal to offer the Bachelor of Science in Cloud Computing degree program.

Your favorable consideration of this request is greatly appreciated.

Sincerely,

Richard J. Gallot, Jr., JD
President

RJG: ks

Attachment

Louisiana Board of Regents

AA 2.05: REQUEST FOR AUTHORITY TO OFFER A NEW DEGREE PROGRAM*

-- Including incremental credentials building up to the Degree --

* Prior to final action by the Board of Regents, no institution may initiate or publicize a new program.*

Date:

Institution: Grambling State University	Requested CIP, Designation, Subject/Title: CIP: 11.0902 Designations: Cloud Computing Subject/Title: : Bachelors of Science (B. S.) in Cloud Computing
Contact Person & Contact Info: Yenumula B Reddy, Program Coordinator, Department of Computer Science & Cybersecurity, Grambling State University, Carver Hall 274, 318-274-2421, ybreddy@gram.edu;	
Date BoR approved the Letter of Intent: January 9, 2020	
Date Governing Board approved this Proposal:	
Planned Semester/Term & Year to Begin Offering Program: Fall 2020	
Program Delivery Site (s): Grambling State University	

1. Program Description

Describe the program concept: (a) purpose and objectives; and (b) list learning outcomes for the proposed program, i.e., what students are expected to know and be able to do upon completion of the program. Be as specific as possible.

Purpose

Grambling State University (GSU) is a co-educational public institution that confers degrees at the bachelors, masters, and the doctorate levels. In bolstering educational opportunities, GSU strives to offer academic degree programs that are aligned with workforce needs.

Grambling State University is proposing to establish a new degree program at the bachelor level in cloud computing. The proposed degree will prepare graduates who have the skills that are needed to address growing workforce needs in cloud computing. A study conducted by Technavio indicates the global cloud computing market is on target to grow by 190.32 billion dollars by 2023. The predicted growth is attributed to small and large companies readily adopting the use of cloud computing for reasons that include cost savings.

Objectives

The overall objective of the proposed new degree program is to prepare graduates who have acquired competencies that will support success in the workforce in each of the three major components of cloud computing. These components are *Software as a Service (SaaS)*, *Infrastructure as a Service (IaaS)* and *Platform as a Service (PaaS)*. Cloud computing provides platforms/services in the *cloud* to individuals and companies that support performing specific tasks. This allows companies to reduce cost associated with data storage and upgrading/maintaining certain hardware and software.

During the summer of 2019, a Grambling State University team participated in a workshop facilitated by Amazon Web Services (AWS), one of the leaders in cloud computing. AWS has an initiative that focuses on cloud computing called **Amazon Web Services Educate**. The *Cloud Degree Initiative* is a collaborative effort between AWS Educate and educational institutions with a purpose of developing academic and workforce programs that prepare students for careers in cloud computing. AWS Educates provides a large number of resources to educational partners at no cost. These resources include the following:

- *Curriculum/Coursework* for 11 families of cloud computing jobs
- *Faculty Development* for educators to build their cloud content knowledge
- *Work-Based Learning* (a mechanism for learning, application, and mentorship in an authentic setting)
- *Job Placement* support on a career path in cloud computing

Amazon Web Services Educate is partnering with institutions to assist in the building of cloud computing academic programs. A list of these institutions includes domestic and international institutions. Grambling State University is

listed as a partnering institution. (https://s3.amazonaws.com/awseducatelist/AWS_Educate_Institutions.pdf)

Grambling State University is benefiting from the relationship with **Amazon Web Services Educate** via a partnership that has been established by the state of Louisiana and a partnership established for Historically Black Colleges and Universities (HBCU's). These partnerships are being used to develop a unique degree program at Grambling State University that will have a focus on current trends in cloud computing. Several competencies for students graduating from the proposed degree program have been identified and are listed below.

- Analyze complex cloud-related problems and identify & define the requirements appropriate to its solution.
- Design, implement, & evaluate cloud-based system, process, component, or program to meet desired needs.
- Communicate effectively with a range of audiences.
- Recognize professional responsibilities and make judgements based on legal, ethical, and social principles.
- Identify the need for and engage in continuing professional development.
- Use techniques, skills, and tools necessary for cloud computing practice.

These competencies will ensure that graduates from this program are prepared to meet the cloud computing workforce needs.

Map out the proposed curriculum, including course credits and contact hours (if applicable). Identify any incremental credentials and/or concentrations within the degree. Indicate which courses will be new. Describe plan for developing and offering new courses as well as any special program requirements (e.g., internships, comprehensive exam, thesis, etc.).

Curriculum

The proposed degree program in cloud computing will not only meet the workforce needs of Amazon Web Services, but will also meet the needs of other emerging leaders in cloud computing. These emerging leaders include Microsoft Azure, Google Cloud Platform and IBM.

The curriculum requires the completion of 120 credit hours. The courses are organized into five categories: cloud computing, computer science, cybersecurity, general education, and mathematics/science. The courses that are a part of each of these categories are highlighted in the section that follows. All of the cloud computing courses are newly developed.

CLOUD COMPUTING COURSES		
Course #	Course Name	Cr. Hrs.
CC 116 (new)	Foundations of Cloud Computing	3
CC 256 (new)	Migrating Data and Application to the Cloud	3
CC 326 (new)	Secure Cloud Architecture	3
CC 350 (new)	Cloud Storage, Application Development and Cloud Management	3
CC 402 (new)	Cloud Computing Seminar	1
CC 408 (new)	Capstone Course (Cloud Computing)	3
CC 412 (new)	Cloud Cryptography and Application	3
CC 415 (new)	Network Virtualization and Cloud Storage Organization	3
CC XXX (new)	Electives in Cloud Computing	6
TOTAL HOURS		28

COMPUTER SCIENCE COURSES		
Course #	Course Name	Cr. Hrs.

CS 110	Computer Science I	3
CS 120	Computer Science III	3
CS 201	Social, Legal, and Ethical Issues in Information Age	3
CS 210	Discrete Structures	3
CS 236	Data Structures and Algorithm Analysis	3
CS 361	Web Programming	3
TOTAL HOURS		18

CYBERSECURITY COURSES		
Course #	Course Name	Cr. Hrs.
CBS 115	Foundations of Cybersecurity	3
CBS 255	Systems Security	3
CBS 326	Introduction to Databases and Security	3
CBS 346	Operating Systems and Security	3
TOTAL HOURS		12

GENERAL EDUCATION COURSES		
Course #	Course Name	Cr. Hrs.
FYE 101 & 102	First Year Experience I & First Year Experience II	2
ENG 101 & 102	Freshman Composition I & Freshman Composition II	6
ENG 200	World Literature	3
ENG 207	Technical Writing	3
HIST 101	History of Western Civilization	3
SOC 101	Introduction to Social Sciences	3
GET 300	Rising Junior Exam	0
ART 105	Introduction to Fine & Performing Arts	3
ECON 201	Principles of Economics	3
THEA 212	Fundamentals of Public Speaking	3
General education	Electives	6
TOTAL HOURS		35

MATHEMATICS AND SCIENCE COURSES		
Course #	Course Name	Cr. Hrs.
MATH 147 & 148	Pre-Calculus I & II	6
MATH 153 & 154	Calculus I & II	6
MATH 273	Probability and Statistics I	3
BIOL 113/115	Principles of Biology Lecture and Lab	4
PHYS 153	General Physics I Lecture and Lab	4
PHYS 154	General Physics II Lecture and Lab	4
TOTAL HOURS		27

Students will have the ability to acquire a workforce credential, an *AWS Cloud Practitioner Certification*. AWS Educate provides at no cost, 3 online courses that cover the content associated with the Cloud Practitioner Certification Exam. These courses are AWS Cloud Practitioner Essentials (Second Edition), AWS Technical Essentials, and AWS Business Essentials. This certificate validates that the holder has the knowledge and skills that demonstrate an overall understanding of the AWS Cloud. The training associated with preparing for the AWS Cloud Practitioner Certification will be aligned with the content covered in specific courses. There will also be opportunities for additional certifications that may be selected from the following workforce recognized credentials.

- AWS Certified Solutions Architect- Professional
- CompTIA Cloud+ Certification
- Cisco CCNA Cloud
- Microsoft Certified Azure Solutions Architect Expert
- Certified Cloud Security Professional (CCSP)
- Google Cloud Certified- Professional Cloud Architect

An **internship course** has been developed to support the cloud computing degree program. A student may enroll in this class and receive 6 or 12 credit hours. The length of the internship will determine the number of credit hours a student may earn. The faculty will identify internship opportunities that are available and encourage students to complete at least one internship during their matriculation through the program. Students will be able to use the *Internship Course* as an elective to fulfill degree requirements. An internship will support students gaining valuable hands-on experience in the workforce that will enhance their cloud computing skills and placement in jobs after completing the program. A curriculum plan organized by each year of the program has been included as an addendum.

Program Delivery (Courses): To what extent must a student come to the campus to complete this program, including orientation or any face-to-face meetings?

Initially the program will be offered in a face-to-face format. When possible, open educational resource materials will be incorporated into the delivery of content.

- | | | |
|--|--|--|
| <input type="checkbox"/> On-site (>50% delivered face-to-face) | <input type="checkbox"/> Hybrid (51%-99% online) | <input type="checkbox"/> Online (100% online) |
| <input checked="" type="checkbox"/> Day courses offered | <input type="checkbox"/> Evening courses offered | <input type="checkbox"/> Weekend courses offered |

2. Need

How is this program essential for the wellbeing of the state, region, or academy (e.g., how is it relevant, how does it contribute to economic development or relate to current/evolving needs).

The proposed degree in cloud computing will support Grambling State University preparing graduates with the skills that are needed to meet the workforce needs associated with cloud computing. A September 2019 press release published by **Businesswire** highlights components of a study that was conducted by Technavio. The release indicates the global cloud computing market is on target to grow by 190.32 billion dollars between 2019 and 2023. The predicted growth is attributed to businesses readily adopting the use of cloud computing. Close to forty (40%) percent of the growth is expected to come from North America. (<https://businesswire.com/news/home/20190925005540/en/Emerging-Trends-Drivers-Challenges-Cloud-Computing-Market>)

As an indication of the need for additional IT workers with cloud computing skills, an article published in Forbes titled "Where Cloud Computing Jobs will be in 2019", addresses the length of time cloud computing related jobs remained open in 2018 before they were filled. The national average was forty-six (46) days. The median salary in 2018 for cloud computing professionals was reported as \$146,350, an increase of \$22,050 over a two-year period. (<https://www.forbes.com/sites/louiscolombus/2018/11/27/where-cloud-computing-jobs-will-be-in-2019/#58ce1ef76add>)

CloudTweaks reports that more industries are joining the virtual world of the cloud and creating jobs to keep up with functions. Industries that will benefit from cloud computing include healthcare, finance & banking, hospitality, telecommunication, and online entertainment (<https://www.collabera.com/find-a-job/career-resources/how-will-cloud-computing-affect-it-jobs/>). The contributions of these industries to the Louisiana economy are significant. As a result, it is imperative that educational institutions in the state of Louisiana produce graduates with cloud computing skills.

The proposed degree in cloud computing will support Grambling State University improving skill development and educational attainment levels for citizens in the state of Louisiana. An article published in 2019 by McKinsey & Company titled "The Future of Work in Black America" focuses on the projected impact that *automation* will have on

the national workforce (<https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-in-black-america>). Support jobs that employ a large number of African Americans are expected to experience the largest decline. The article predicts that as automation continues to grow, that by 2030 one hundred thirty-two thousand (132,000) jobs held by African Americans will be lost. The report projects that the job displacement rate for African Americans will be 23.1% and even higher for African American males, 24.8%. Calculated displacement risks dropped significantly when the person had earned a college degree. The article indicates that Historically Black Colleges and Universities have a role to play in ensuring that the African American community is not disproportionately affected by changes in the job market due to automation. A recommendation was made that HBCU's should provide opportunities for African Americans, and others, to pursue degrees that support employment in jobs that are projected for growth. The proposed degree program in cloud computing supports occupational areas that are most resistant to *automation-based* displacement.

Graduates from the proposed degree program in cloud computing support decreasing the number of families in the state of Louisiana who have incomes that are at or below the national poverty level. The median salary for cloud computing professionals in the state of Louisiana is \$107,000 and \$117,257 at the national level. This data was reported by ziprecruiter in January 2020 (<https://www.ziprecruiter.com/Salaries/How-Much-Does-a-Cloud-Computing-Make-a-Year--in-Louisiana>).

Cloud Computing Salary In Louisiana

Yearly Monthly Weekly Hourly



Cloud Computing Salary Comparison by Location

Nationwide United States	\$117,185
Louisiana United States	\$107,165

The salary for Cloud Systems Analyst in the state of Louisiana usually falls within the range of \$71,464 and \$97,006. Salaries vary widely depending on the city and many other important factors, including certifications and the number of years spent in a profession.

Alignment with Master Plan Priorities

The proposed program is aligned with the Master Plan for Higher Education. The Cloud Computing degree program will address accessibility, affordability and work-based learning.

- Accessibility (mode of delivery, alternate course scheduling)- The first year the program is implemented it will be delivered in a traditional face-to-face format. The program will eventually be converted to 100% online delivery.
- Affordability (Use of OER, transfer articulation, prior learning assessment)- Program faculty is currently working with community colleges in the state of Louisiana to develop transfer agreements.
- Partnerships (with industry, other institutions)- This program has a heavy industry focus. The partnership that has driven the development of this program is with Amazon Web Services. Additional partners include General Dynamics, Cyber Innovation Center, CenturyLink, IBM,

Microsoft, and Google. Three Letter of supports are provided in Appendix C.

- d. Work-based learning (paid internships, apprenticeships, etc.)- Students enrolled in the Cloud Computing Program will be encouraged to complete at least 1 internship.

This program will contribute to closing the achievement gap with underserved populations. These populations will include those who come from socioeconomically deprived areas and those who have low representation in the STEM workforce.

LOUISIANA WORKFORCE COMMISSION STAR LEVEL (<http://www.laworks.net/Stars/>)

☒ 5 Stars ☐ 4 Stars ☐ 3 Stars ☐ 2 Stars ☐ 1 Star

Describe how the program will further the mission of the institution.

Grambling State University strives to prepare graduates who are equipped to compete and succeed in careers. The University seeks to provide educational opportunities for all, which supports improving the quality of life for communities. The proposed new degree program supports the mission of Grambling State University and institutional priorities associated with preparing graduates that meet the workforce needs of the state and the nation.

The proposed degree program will impact the quality of life for citizens of Louisiana in several ways. The first is related to the educational attainment level for the state. An increase in the educational attainment level will impact new businesses that the state is able to attract. Secondly, graduates from this program who obtain jobs in the cloud computing area will increase their earning potentials. Increased earnings have the ability to raise the standard of living of families and decrease the poverty level for the state. Lastly, the proposed degree program will enhance the operations of Louisiana businesses that utilize cloud computing. These benefits include reduction in costs to operate and increases in the quality of services provided. These benefits could support the longevity of the business in the state.

The proposed program is unique for the region/area. Not only will this program fill a current void in Louisiana, it will also draw students from neighboring states. GSU is confident that the program will be successful and a model for future degree programs.

Identify similar programs in the State and explain why the proposed one is needed: present an argument for a new or additional program of this type and how it will be distinct from existing offerings.

Cloud Programs in Louisiana

The proposed program does not duplicate or compete with any existing degree program offered by a public university in Louisiana. Universities in the state of Louisiana are currently offering computer science related degrees that provide concentrations in cloud computing.

- **LA Tech University** offers a cloud computing concentration that requires completion of four courses.
 - Distributed and Cloud Computing
 - Data Mining and Knowledge Discovery
 - Advanced Data Mining, Fusion
 - Applications

- **University of Louisiana at Lafayette** offers a cloud computing concentration that requires the completion of the following two courses along with electives.
 - CMPS 432 Parallel and Distributed Computing
 - ACCT 201 Introduction to Financial Accounting
- **LSU at Baton Rouge** offers a cloud computing and networking concentration that requires the completion of four courses.
 - Cloud Fundamentals and Web Programming
 - Introduction to Database Management Systems
 - Computer Networks
 - Virtualization and Cloud Systems

The three universities discussed above do not offer a degree program in cloud computing. The concentrations offered require at most the completion of 12 credit hours. The proposed B.S. degree in cloud computing at Grambling State University will require the completion of twenty-eight (28) credit hours in cloud computing coursework. Graduates from this program will have a solid foundation in cloud computing that will prepare them for a variety of cloud related careers.

Louisiana Community and Technical College System (LCTCS) and collaboration Activity:

LCTCS colleges in Louisiana are developing associate degree programs in cloud computing. Grambling State University will partner with these colleges to ensure a seamless transfer of community college students into the proposed bachelor level cloud computing degree.

The faculty at GSU that will be supporting the proposed program has meet with faculty at Bossier Parish Community College and Delta Community College in Monroe. These two colleges have expressed an interest in working to ensure that interested students at their institutions can transfer easily into the proposed new degree program.

If approved, will the program result in the termination or phasing out of existing programs? Explain.

No program will be phased out or terminated.

If a Graduate program, cite any pertinent studies or national/state trends indicating need for more graduates in the field. Address possibilities for cooperative programs or collaboration with other institution(s).

Not Applicable

3. Students

Describe evidence of student interest. Project the source of students (e.g., from existing programs, or prospects of students being recruited specifically for this program who might not otherwise be attracted to the institution).

The proposed new program in cloud computing will complement the computer science and cybersecurity degree programs that are being offered by Grambling State University. The expectation is the cloud computing degree program will not diminish interest in the current degree programs in computer science and cybersecurity that are offered. This expectation is in alignment with what has transpired with the computer science degree program with the implementation of the cybersecurity degree program this fall 2019 semester. Fall 2018 enrollment data shows that 66 students at GSU had computer science as a declared major. Preliminary data for fall 2019 shows that students with a declared major in computer science increased to 71. Twenty-two (22) students are majoring in the newly implemented degree program in cybersecurity.

A ten-question survey was distributed to a sample of GSU students. The survey was developed to gauge interest in the proposed degree program. One hundred completed surveys were returned. More than 60% of respondents

indicated interest in the proposed cloud computing degree program.

In 2019, the Board of Regents approved for colleges within the Louisiana Community and Technical College System to develop associate degree programs in cloud computing. Grambling State University plans to work with community colleges to develop a 2+2 program. Students who complete the associate degree will only need an additional two years of coursework to complete requirements for the B.S. degree in cloud computing when they enroll at Grambling State University.

Projected enrollment numbers are based on student interest and the expected establishment of 2+2 programs with community colleges in the state of Louisiana.

Project enrollment and productivity for the first 5 years, and explain/justify the projections.

Projected enrollment numbers are based on student interest and the expected establishment of 2+2 programs with community colleges in the state of Louisiana.

PROJECTED ENROLLMENT IN PROPOSED CLOUD COMPUTING PROGRAM				
Academic Year	New Majors in Cloud Computing	Total Cloud Computing Majors	Graduates	Total
2020-2021	20	20		
2021-2022	22	42		
2022-2023	25	67		
2023-2024	30	97	12	97-12=85
2024-2025	30	115	15	115-15=100

List and describe resources that are available to support student success.

Grambling State University provides resources that support the retention and graduation of students. These resources include tutorials, supplemental instruction and academic coaching. Tutorials and supplemental instruction are provided for key gatekeeper courses. These courses include mathematics, computer science and certain general education courses.

The university also has an **Early Alert System** that allows faculty to refer students who are at risk of failing a class to the Office of Retention for additional specialized support services.

What preparation will be necessary for students to enter the program?

Students will need to meet requirements for being admitted to Grambling State University. Students may be admitted as a first time freshman or as a transfer student.

If a Graduate program, indicate & discuss sources of financial support for students in the program.

Not applicable.

4. Faculty

List present faculty members who will be most directly involved in the proposed program: name, present rank; relevant degree; courses taught; other assignments.

The following faculty will be directly involved in the proposed degree in Cloud Computing.

Name	Present Rank	Relevant Degree	Courses Taught	Other Assignments
Yenumula B Reddy	Professor	Ph. D. in Computer Science	Social, Legal, and Ethical Issues in Information Age; Data Structures; Special Topics in Computer Science; Parallel Processing; Computer Science Seminar; Design and Analysis of Algorithms, Special Topics in Computer Science; Capstone Course;	Program Coordinator Cyber security Activity Director Student Advisement
Vasanth Iyer	Assistant Professor	Ph. D. in Computer Science	Data Structures, Cybersecurity, Networking, Data Mining, Distributed sensor Networks, Cloud Computing and Applications	Student Advisement
Prasanthi Sreekumari	Assistant Professor	Ph. D. in Computer Engineering	Computer Science I; Computer Science II; Information Assurance and Security; Computer Architecture; Database Management Systems; Operating Systems; Computer Networks; Capstone Course;	Student Advisement
Babu Baniya	Assistant Professor	Ph. D. in Computer Science and Engineering	Computer Science I; Computer Science II; Software Engineering; Computer Networks; Artificial Intelligence; Advanced Programming Techniques;	Student Advisement
New Faculty, Cybersecurity Starts Fall 2020	Assistant Professor	Ph. D. Cybersecurity	Computer Science I; Computer Science II, Foundations of Cybersecurity, Vulnerability Assessment, Applied Cryptography, Infrastructure security	Student Advisement
Dilion St-Jean	Part-time Faculty, Computer Science	Currently enrolled in a Ph. D. program.	Computer Science I; Computer Science II	None

Project the number of new faculty members needed to initiate the program for each of the first five years. If it will be absorbed in whole or part by current faculty, explain how this will be done. Explain any special needs.

Year 1

The expenses for Year 1 include the salary for one faculty member at \$91,700 (\$70,000 salary; \$21,700 overheads), software and travel. A new faculty is needed to teach and advise students. The salary of the new hire will be covered by the operating budget.

Year 2

The expenses for Year 2 include the salary for one additional faculty member that will be hired at \$70,000 plus fringe benefits. The total amount allocated for salaries is \$183,400. Faculty salaries will be covered using funds from the operating budget.

Describe involvement of faculty – present and projected – in research, extension, and other activities and the relationship of these activities to teaching load. For proposed new faculty, describe qualifications and/or strengths needed.

Faculty Name	Research Activities	Relationship of these activities to Teaching
Yenumula Reddy	<ul style="list-style-type: none"> • Hadoop Distributed File Systems • Big Data and Cloud Security • Vulnerability Assessment • Trust-based systems (Internet of Things) • GPU Based Architecture for latent fingerprints 	Teaches computer Science 50% and cybersecurity courses 50%
Vasanth Iyer	<ul style="list-style-type: none"> • Computer Graphics • Sensor networks • High Performance Computing • Cryptography, and Computer Simulations 	Teaches computer Science 40% and cybersecurity courses 60%
Prasanthi Sreekumari	<ul style="list-style-type: none"> • Protocols • Sensor networks • Wireless networks • Data Center networks. 	Teaches computer Science 60% and cybersecurity courses 40%
Babu Baniya	<ul style="list-style-type: none"> • Data analysis • Networks • Machine learning • Bio-image classification 	Teaches computer Science 60% and cybersecurity courses 40%
New Faculty member that will be hired to support the Cybersecurity program will also support the Cloud Computing Program. Projected Start date of Fall 2020 at a Starting Salary: \$65,000)	Ph. D. in Cybersecurity and research activities related to cybersecurity (Publications in Cybersecurity area)	Teaches computer Science, 40% and cybersecurity courses 60%
New Faculty-2 Starting Salary: \$65,000) Cybersecurity – to be announce in AY 2020-21	Ph. D. in Computer Science and research activities related to cybersecurity (Publications in Cybersecurity area)	Teaches computer Science 40% and cybersecurity courses 60%
New Faculty-3 & 4 Starting Salary: \$70,000) Cloud Computing To be advertised in AY 2021-22	Ph. D. in Computer Science and research activities related to cloud Computing (Publications in cloud computing and cloud security area) One Faculty in 2 nd year and another in 3 rd Year budget	Teaches computer Science 40% and cloud computing courses 60%
Current Part-time Faculty– Mr. Dilion St-Jean	Scheduled to complete Ph. D. In fall 2020	Currently teaching two foundational courses in Computer Science

5. Library and Other Special Resources

To initiate the program and maintain the program in the first five years what library holdings or resources will be necessary? How do journal, database, monograph, datasets, and other audiovisual materials compare to peer institutions' holdings with similar/related programs?

The current location of the Library in Charles P. Adams is operating as a digital library. The library provides access to 173,895 Electronic Databases & Resources. The library is open a total of 70 hours a week. Access to all of the library's electronic information is available during all times seven days a week. This access is available both on and off campus. The Library serves as the research and knowledge repository hub or heart of the university which helps the students and faculty stay connected, stay informed, and continue to be current with research information. The library extends access to library services and resources beyond the physical building through the library's digital

collection via the internet. Access is provided to over **244,489 EBSCO eBooks** and electronic databases including the subscriptions. These electronic resources include those that focus on computer science, cybersecurity and cloud computing.

What additional resources will be needed?

None

Are there any open educational resources (OER), including open textbooks, available to use as required course materials for this program? If so, which courses could these materials support, and what is the anticipated savings to students?

At this time no open educational resource materials have been identified for adoption.

6. Facilities and Equipment

Describe *existing* facilities (classrooms, labs, offices, etc.) available for the program and their present utilization.

The Department of Computer science is located in Carver Hall 2nd floor. Faculty offices and computer labs are located on the same floor. A new laboratory will be established during the second year that the program is implemented. This lab will be devoted solely to cloud computing. The cloud computing program will also utilize existing laboratory space that is available. The configuration of hardware located in each of these labs is highlighted below.

CH276 Lab

Dell OptiPlex 7050
Windows 10 Pro x64
CPU: Intel i7-7700 3.6 GHz (8 cores)
RAM: 32 GB, 2400 MHz
Graphics Card: AMD Radeon R7 450
Hard Drive: SK Hynix SC311 SATA 256 GB SSD

CH277 Lab

Dell OptiPlex 7050
Windows 10 Pro x64
CPU: Intel i7-7700 3.6 GHz (8 cores)
RAM: 32 GB, 2400 MHz
Graphics Card: AMD Radeon R7 450
Hard Drive: SK Hynix SC311 SATA 256 GB SSD

CH282 Lab

Dell OptiPlex 7060
Windows 10 Pro x64
CPU: Intel i7-8700 3.2 GHz (12 cores)
RAM: 32 GB, 2666 MHz
Graphics Card: NVidia GeForce GTX 1060 3GB
Hard Drive: Toshiba 256 GB M.2

CH286 Lab

Dell Precision 3630
Windows 10 Pro x64
CPU: Intel i7-8700 3.2 GHz (12 cores)
RAM: 32 GB, 2666 MHz

Graphics Card: NVidia GeForce RTX 2060
Hard Drive: SK Hynix SC401 SATA 512 GB SSD

Describe the need for new facilities (e.g., special buildings, labs, remodeling, construction, equipment), and estimate the cost, proposed sources of funding, and estimated availability for program delivery.

One computer lab will be remodeled to support the Cloud Computing program. This lab is located in Carver Hall room 281. The renovation of this space will begin Fall 2020. The new computer lab will include a strong Wi-Fi connection to Amazon Web Services and a special server. New tables will be installed to support students being able to work Collaboratively. The projected cost of the renovation is \$45,000.

7. Administration

In what administrative entity (department/school/college) will the proposed program be housed? How will the new program affect the present administrative structure of the institution?

The proposed program will be housed in the College of Arts and Sciences. It will be located in the Computer Science department.

Describe departmental strengths and/or weaknesses and how the proposed program will affect them.

The strengths include the commitment the university has to offering the proposed degree in cloud computing. Additional strengths include laboratory resources and human resources. The laboratory equipment that the program currently has will be used to support this program. The current computer science faculty have the skills that are needed to support the implementation of the cloud computing program. For the academic year 2020-21, each computer science faculty will teach one Cloud Computing related course per semester. New faculty will be hired to support the implementation of the program.

8. Accreditation

Describe plan for achieving *program* accreditation, including: name of accrediting agency, basic requirements for accreditation, how the criteria will be achieved, and projected accreditation date.

Currently ABET does not have published accreditation guidelines identified for degrees in cloud computing. Once this accrediting body releases guidelines, the university will pursue accreditation of this proposed program.

If a graduate program, describe the use of consultants in developing the proposal, and include a copy of the consultant's report as an appendix.

Not Applicable

9. Related Fields

Indicate subject matter fields at the institution which are related to, or will support, the proposed program; describe the relationship.

The computer science degree program and the cybersecurity degree program are both related subject matter fields. Cloud Computing majors will be required to take 15 semester hours of core computer science courses. They will also be required to complete 9 semester hours of cybersecurity courses.

10. Cost & Revenue

Summarize additional costs to offer the program, e.g., additional funds for research needed to support the program; additional faculty, administrative support, and/or travel; student support. How will the program affect the allocation of departmental funds? *On the separate budget form, estimate new costs and revenues for the projected program for the first four years, indicating need for additional appropriations or investment by the institution.

The table that follows captures additional costs associated with offering the proposed degree program as well as anticipated revenue sources. This program will not have an adverse effect on the allocation of funds to the computer science department.

Degree Program, Unit: Bachelor of Science in Cloud Computing, Computer Science department

FTE = Full Time Equivalent (use the institution's standard definition and provide that definition).

EXPENDITURES								
INDICATE ACADEMIC YEAR:	FIRST		SECOND (One faculty)		THIRD Add second Faculty)		FOURTH (Two faculty salaries)	
	AMOUNT	FTE	Amount	FTE	AMOUNT	FT E	AMOUNT	FTE
Faculty	\$0		\$70,000		\$140,000 (\$70,000+\$70,000)		\$140,000	2
Graduate Assistants								
Support Personnel								
Fellowships and Scholarships								
SUB-TOTAL	\$0		\$70,000		\$140,000		\$140,000	
	AMOUNT		AMOUNT		AMOUNT		AMOUNT	
Facilities (Title III) Lab Preparation (electrical, Internet, and basic preparation) Special Tables for computers and Instruction: Smart Board	\$45,000 \$20,000 \$25,000 \$6,000		\$0		\$0		\$0	
Equipment (Title III) Computers Cloud software	\$76,000 \$66,000 \$10,000		\$0		\$0		\$0	
Travel (partially from Title III) Title III Grants	\$18,000 \$8,000 \$10,000		\$18,000		\$18,000		\$18,000	
Supplies	\$5,000		\$5,000		\$5,000		\$5,000	
SUB-TOTAL	\$150,000		\$23,000		\$23,000		\$23,000	
TOTAL EXPENSES	\$150,000		\$103,000		\$163,000		\$163,000	
REVENUES								
Revenue Anticipated From:	AMOUNT		AMOUNT		AMOUNT		AMOUNT	
*State Appropriations	\$		\$		\$		\$	
*Federal Grants/Contracts	\$150,000		\$150,000		\$150,000		\$150,000	

*State Grants/Contracts				
*Private Grants/Contracts				
Expected Enrollment				
Tuition	\$3,721*18=\$66,978	\$3,721*38=\$141,398	\$3,721*58=\$215,818	\$3,721*58=\$215,818
Fees				
*Other (specify)				
TOTAL REVENUES	\$216,97820	\$291,398	\$365,818	\$365,818

Budget Justification:

Year 1

The expenses for include Lab preparation (\$45,000), Equipment including Hardware and software (\$66,000), Travel (\$18,000) and supplies (\$5,000) totaling \$134,000.

Year 2

The expenses for Year 2 include the salary for one faculty member (\$70,000), Travel (\$18,000), and supplies (\$5,000) totaling of \$93,000.

Year 3

The expenses for Year 3 include the salary for one additional faculty member that will be hired at \$70,000, travel \$18,000, and supplies \$5,000. Since the 2nd year faculty salary also included in third year, the number of Cloud computing faculty becomes two for third year. Therefore, the total amount required is \$70,000 + \$70,000 + \$18,000 + \$5,000= \$163,000

Year 4

Faculty salaries will continue to be supported using funds from the operating budget along with travel and supplies (\$163,400

Outside of revenue from tuition & fees, explain and justify any additional anticipated sources of funds, e.g., grants (in hand, promised, or in competition), institutional funds, etc.

Sources of Funding: Title III, Tuition, and University Budget allocations.

Evaluation and Assessment

Programmatic Assessment:

The assessment of the proposed Cloud Computing degree program will be aligned with the planning and assessment process at the University. Assessment results will be reviewed and continuously used to make improvements. A major part of the assessment will focus on how well the program is preparing graduates to be successful in cloud computing related jobs. Several student learning outcomes have been identified for the program. Appendix E provides the expected student learning outcomes and methods of assessment.

Assessment data will be collected related to the 1) enrollment numbers, 2) retention rates, 3) student achievement, 4) professional presentations and publications by faculty and students, and 5) the placement of the graduates.

Will the proposed program seek program-specific accreditation?

When cloud computing accreditation becomes available through ABET the university will seek this accreditation.

CERTIFICATIONS:

Y Bladdy

Primary Administrator for Proposed Program

2/10/20

Date

Conne Wapton

Provost/Chief Academic Officer

2/10/2020

Date

Management Board/System Office

Date

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

- Item F.2.** **McNeese State University's** request for approval to award an Honorary Doctorate of Humane Letters to Mr. Richard Ieyoub at the Spring 2020 Commencement Exercises.

EXECUTIVE SUMMARY

McNeese State University (MSU) requests approval to award an Honorary Doctorate of Humane Letters to Mr. Richard Ieyoub at the Spring 2020 Commencement Exercises. Mr. Ieyoub earned his Bachelor of Arts in History from McNeese in 1968 and went on to earn a Juris Doctorate from the LSU Paul M. Hebert Law Center. Mr. Ieyoub is a native of Lake Charles and was twice elected Calcasieu Parish District Attorney. During his tenure as District Attorney of Calcasieu Parish, he served as president of the National District Attorney's Association and, as leader of that association, he was instrumental in helping pass the Crime Bill of 1991. This legislation provided much needed funding for law enforcement agencies throughout the nation and allowed for the hiring of 100,000 additional police officers to assist in the fight against crime. For his work on the Crime Bill of 1991, President George H.W. Bush publicly recognized Mr. Ieyoub as an "All-American Hero."

In 1991, Mr. Ieyoub was elected to his first term as Attorney General of the State of Louisiana; he served three terms in this position. During his tenure as Attorney General he was responsible for launching many highly successful programs to prevent elderly abuse, toughen "career criminals" prosecution, curb drunk driving, and provide for safer schools. While serving as Attorney General, Mr. Ieyoub successfully concluded the state's lawsuit against Texaco for failure to pay the state oil royalties for the lease of state lands. The settlement of this case resulted in the payment of \$250 million by Texaco to the State of Louisiana. In addition, Mr. Ieyoub led Louisiana's lawsuit against the tobacco companies to recover monies expended by the state Medicaid program for the treatment of smoking-related diseases. Louisiana received \$4.6 billion in the settlement of this case and the tobacco companies were forced to cease and desist in the use of cigarette advertisements specifically geared to appeal to minors.

Governor John Bel Edwards appointed Mr. Ieyoub to serve as Louisiana's Commissioner of Conservation in February 2016; he continues to serve in this capacity at present. The Commissioner of Conservation is the chief regulator of the oil and gas industry in Louisiana, a key position in the state. He is the recipient of the McNeese Alumni Association Distinguished Alumni Award, the Diocese of Lake Charles Outstanding Public Servant Award, and the New Orleans City Business Leadership in Law Award. His substantial achievements, his passion for service, along with his ardent support for McNeese State University and the State of Louisiana, clearly warrant the granting of the honorary doctorate.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves McNeese State University's request to award an Honorary Doctorate of Humane Letters to Mr. Richard Ieyoub at the Spring 2020 Commencement Exercises.



F 2

February 5, 2020

RECEIVED

FEB 06 2019

UNIVERSITY OF
LOUISIANA SYSTEM

Dr. James B. Henderson, President
University of Louisiana System
1201 North Third Street
Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Henderson:

Enclosed are copies of McNeese State University's request to award an Honorary Doctorate of Humane Letters to Mr. Richard Ieyoub at the May 16, 2020 commencement exercises.

Please place this item on the ULS Board of Supervisors' agenda for consideration and approval at the February 28, 2020 meeting.

Thank you for your attention in this matter.

Sincerely,

Dr. Daryl V. Burckel
President

Enclosures



February 5, 2020

Dr. James B. Henderson, President
University of Louisiana System
1201 North Third Street
Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Henderson:

I request approval for McNeese State University to grant an Honorary Doctor of Humane Letters degree to Mr. Richard P. Ieyoub to be awarded during the May 16, 2020 Commencement Exercises.

Mr. Ieyoub is a 1968 graduate of McNeese with a Bachelor of Arts degree in history. He earned his Juris Doctorate from Louisiana State University.

He is a Lake Charles native and he was twice elected Calcasieu Parish District Attorney and served three terms as Louisiana Attorney General.

Mr. Ieyoub's focus was on improving the quality of life for the citizens of Louisiana by fighting crime and standing up for children and families.

During his tenure as District Attorney of Calcasieu Parish, he served as president of the National District Attorney's Association and, as leader of that association, he was instrumental in helping pass the Crime Bill of 1991. This legislation provided much needed funding for law enforcement agencies throughout the nation and allowed for the hiring of 100,000 additional police officers to assist in the fight against crime. For his work on the Crime Bill of 1991, President George H.W. Bush publicly recognized Mr. Ieyoub as an "All-American Hero."

Attorney General Ieyoub was responsible for launching many highly successful programs to prevent elderly abuse, toughen "career criminals" prosecution, curb drunk driving, and provide for safer schools.

While serving as Attorney General, Mr. Ieyoub successfully concluded the state's lawsuit against Texaco for failure to pay the state oil royalties for the lease of state lands. The settlement of this case resulted in the payment of \$250 million dollars by Texaco to the State of Louisiana.

Attorney General Ieyoub also led Louisiana's lawsuit against the tobacco companies to recover monies expended by the state Medicaid program for the treatment of smoking-related diseases. Louisiana received \$4.6 billion in the settlement of this case and the tobacco companies were forced to cease and desist in the use of cigarette advertisements specifically geared to appeal to minors.

Mr. Ieyoub has received the McNeese Alumni Association Distinguished Alumni Award, the Diocese of Lake Charles Outstanding Public Servant Award and the New Orleans City Business Leadership in Law Award.

Mr. Ieyoub's substantial achievements, his passion for service, along with his ardent support for McNeese State University and the state of Louisiana, clearly warrant the granting of the honorary doctorate.

Sincerely,



Dr. Daryl V. Burckel
President



McNEESE ALUMNI ASSOCIATION

February 3, 2020

Dr. Daryl Burckel
President
McNeese State University
Lake Charles, LA 70609

RE: Nomination of Mr. Richard Ieyoub for the Honorary Doctorate of Humane Letters degree

Dear Dr. Burckel:

The ad hoc committee on Honorary Degrees reviewed the nomination of Mr. Richard Ieyoub as a candidate for an Honorary Doctorate of Humane Letters degree.

Upon thorough review and discussion of Mr. Ieyoub's lengthy resume and biography, the committee noted that his life and works truly do exemplify the mission and vision of McNeese State University. He is a 1968 McNeese graduate and recipient of the Distinguished Alumnus Award.

He has represented the citizens of Southwest Louisiana for over 25 years, having served as District Attorney for Calcasieu Parish and three terms as Attorney General for the State of Louisiana.

Mr. Ieyoub served as president of the National District Attorney's Association where he was instrumental in helping the administration of President George H.W. Bush pass the Crime Bill of 1991, for which he was named an "All American Hero" by President Bush. Mr. Ieyoub has also served as a member of the National Commission on Model State Drug Laws.

During his three terms as Attorney General he made improving the quality of life for the citizens of Louisiana a top priority by fighting crime and standing up for children and families. He was responsible for launching highly successful programs including "Operation Safe Keep," a program to prevent elderly abuse, tough "career criminals" prosecution programs, state-wide campaigns to curb drunk driving, and he led the fight for safer schools through the development of "Operation Safe Haven," which resulted in Louisiana's first comprehensive school safety drive. He also launched the "You Drink, You Drive, You Walk" program which was designed to prevent under-age drinking throughout the state.

Attorney General Ieyoub successfully concluded the state's lawsuit against Texaco for their failure to pay oil royalties for the lease of state lands, resulting in a payment of \$250 million to the state. Attorney General Ieyoub also led Louisiana's lawsuit against tobacco companies resulting in a \$4.6 billion settlement and agreement by the tobacco companies to cease advertising products that were enticing to minors.

In 2016, Mr. Ieyoub was appointed by Governor John Bel Edwards to serve as Louisiana's Commissioner of Conservation, the chief regulator of the oil and gas industry in Louisiana and exercises jurisdiction over all of the natural resources of the state not within the jurisdiction of other state departments or agencies.

Richard Ieyoub is a Lake Charles native, a McNeese graduate as well as a Louisiana State University graduate. He has been an ardent supporter of education and families. His awards and accomplishments are too many to list here, but as you can see, he has served his alma mater and the state of Louisiana with distinction.

The McNeese ad hoc committee on Honorary Degrees wishes to submit this recommendation that Mr. Richard Ieyoub be awarded the Honorary Doctorate of Humane Letters degree from McNeese State University at the May 16, 2020 Commencement Ceremony.

Sincerely,

Joyce D. Patterson, M.S.
Committee Chair
Director of Alumni Affairs

A handwritten signature in blue ink, appearing to read "Joyce Patterson", written over a horizontal line.

Frederick "Chip" LeMieux, Ph.D.
Dean, College of Science and Agriculture

A handwritten signature in blue ink, appearing to read "Chip LeMieux", written over a horizontal line.

Peggy L. Wolfe, Ph.D., MS, MPH, RN
Dean, College of Nursing and Health Professions

A handwritten signature in blue ink, appearing to read "Peggy Wolfe", written over a horizontal line.

Richard P. Ieyoub

Richard Ieyoub has been actively involved in Louisiana law and politics for over 25 years. He served three terms as Louisiana Attorney General.

A Lake Charles, Louisiana native, he received his Bachelor of Arts degree in history from McNeese State University and his Juris Doctorate from Louisiana State University Law School. After graduation from law school, he served as a Special Prosecutor for three years in the Criminal Division of the Louisiana Attorney General's Office. He then returned to Lake Charles and was involved in the private practice of law, with an emphasis on civil and criminal litigation, for approximately nine years. In 1984, Mr. Ieyoub was elected District Attorney of Calcasieu Parish. In 1990, he was re-elected District Attorney without opposition. During his tenure as District Attorney of Calcasieu Parish, he served as president of the Louisiana District Attorney's Association. He also served as president of the National District Attorney's Association and, as leader of that association, he was instrumental in helping the administration of President George Herbert Walker Bush pass the Crime Bill of 1991. This Legislation provided much needed funding for law enforcement agencies throughout the nation and allowed for the hiring of one hundred thousand additional police officers to assist in the fight against crime. For his work on the Crime Bill of 1991, President George H.W. Bush publicly recognized Mr. Ieyoub as an "All American Hero." President Bush also appointed Mr. Ieyoub to serve as a member of the National Commission on Model State Drug Laws. The commission was charged with the responsibility of developing and preparing model state legislation to prevent the illegal use and distribution of drugs.

In 1991, he was elected to his first term as Attorney General of the State of Louisiana. In this election he received the highest vote total any candidate has ever received in the State, more than 1.1 million votes. He was re-elected to a second term in 1995, once again obtaining over 1 million votes. No other candidate in the history of the state has ever obtained over 1 million votes twice. He was re-elected to his third term without opposition in 1999. During his three terms as Attorney General, he made improving the quality of life for the citizens of Louisiana a top priority by fighting crime and standing up for children and families. He is responsible for launching highly successful programs including "Operation Safe Keep," a program to prevent elderly abuse, tough "career criminals" prosecution programs, state-wide campaigns to curb drunk driving, and he led the fight for safer schools through the development of "Operation Safe Haven," which resulted in Louisiana's first comprehensive school safety plan. He was also responsible for launching the "You Drink, You Drive, You Walk" program which was designed to prevent under-age drinking throughout the state. This program was

eventually chosen as one of the 23 best programs in the United States by the U.S. Commission on Highway Safety.

While serving as Attorney General, Mr. Ieyoub personally argued more cases before the United States Supreme Court than any other sitting Attorney General. As a criminal defense lawyer in private practice, he argued numerous criminal cases before the Louisiana Supreme Court. He also argued before the U.S. Fifth Circuit Court of Appeal and the United States Supreme Court.

Attorney General Ieyoub successfully concluded the state's lawsuit against Texaco for failure to pay the State oil royalties for the lease of state lands. The settlement of this case resulted in the payment of two hundred fifty million dollars by Texaco to the State of Louisiana. Texaco also agreed to initiate certain business practices which significantly increased the amount of oil exploration on state lands and the number of oil related jobs for Louisiana citizens.

Attorney General Ieyoub also led Louisiana's lawsuit against the tobacco companies to recover monies expended by the state Medicaid program for the treatment of smoking related diseases. Louisiana received 4.6 billion dollars in the settlement of this case and the tobacco companies were forced to cease and desist in the use of cigarette advertisements specifically geared to appeal to minors.

As a result of Hurricane Katrina, the infrastructure of the Orleans Parish Criminal Justice System was completely destroyed. Mr. Ieyoub was appointed to serve as the representative of the city of New Orleans on a task force which worked with federal agencies to rebuild court rooms, jails, and other criminal justice facilities. Additionally, the task force made recommendations for improving the administration of criminal justice in Orleans Parish.

After leaving office in January of 2004, Mr. Ieyoub entered the private practice of law in Baton Rouge, Louisiana. His practice areas include civil and criminal litigation and appellate practice, governmental relations, strategic business developments, negotiations and dispute resolutions.

Mr. Ieyoub served as a member of the Board of Directors of St. Jude's Children's Research Hospital and served as a member of the Hospital's Professional Advisory Board.

Mr. Ieyoub was named a Distinguished Alumni of McNeese State University and the Roman Catholic Diocese of Lake Charles awarded him its "Outstanding Public Servant"

Award. In 2005, Mr. Ieyoub received the New Orleans City Business Leadership in Law Award.

In February of 2016, Mr. Ieyoub was appointed, by Governor John Bel Edwards, to serve as Louisiana's Commissioner of Conservation and he has continually served in that capacity from February of 2016 to the present. The Commissioner of Conservation is the chief regulator of the oil and gas industry in Louisiana and exercises jurisdiction over all of the natural resources of the state not within the jurisdiction of other state departments or agencies.

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

- Item F.3. McNeese State University's request for approval of a Letter of Intent to offer a Master of Science in Nutritional Sciences.**

EXECUTIVE SUMMARY

McNeese State University (MSU) requests approval of a Letter of Intent to offer a Master of Science in Nutritional Sciences. In January 2020 the Commission on Dietetics Registration (CDR) changed the entry-level registration eligibility education requirements for dietitians, beginning in 2024, from a baccalaureate degree to a minimum of a graduate degree. Currently, McNeese students can become eligible to sit for the national Registration Examination for Dietitians by completing a baccalaureate degree as well as the required Dietetic Internship (DI) via McNeese's Master of Science (MS) in Health and Human Performance with a concentration in Nutrition and Wellness. McNeese State University is the only university in Louisiana that requires a combined MS/DI program to receive a verification statement to graduate.

In preparation for the next professional reaccreditation cycle (Accreditation Council for Education in Nutrition and Dietetics, ACEND), MSU would like to transition the existing MS/DI program to an MS in Nutritional Sciences in order to better align with accreditation standards. The proposed MS in Nutritional Sciences, to consist of 39 credit hours and 1,344 hours of supervised practice, would require students to complete graduate coursework and supervised practice hours at the same time. The design of the proposed program coincides with the professional accrediting body's requirement that graduate programs must integrate both the academic coursework and supervised practice components into a seamless (one-step) program as a requirement to obtain the future entry-level Registered Dietician Nutritionist (RDN) credential. In addition, the name of the proposed degree more accurately portrays content learned and clinical experiences.

The existing MS in Health and Human Performance with a concentration in Nutrition and Wellness receives approximately 35-45 applicants each year and selects ten (10) students to begin the program each fall semester. The University anticipates the same for the proposed MS In Nutritional Sciences. The University plans to terminate the Nutrition and Wellness concentration upon receiving approval to offer the MS in Nutritional Sciences (effective Fall 2020); two concentrations (Exercise Physiology and Health Promotions) will still be offered so the MS in Health and Human Performance will remain viable in regards to enrollment and completers. The University will be able to transition to the proposed MS in Nutritional Sciences at no additional cost because existing faculty will provide instructional support and all courses required of the proposed program are already offered by MSU.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves McNeese State University's Letter of Intent to offer a Master of Science in Nutritional Sciences.



F 3

February 5, 2020

Dr. James B. Henderson, President
University of Louisiana System
1201 North Third Street
Suite 7-300
Baton Rouge, LA 70802

RECEIVED

FEB 06 2019

UNIVERSITY OF
LOUISIANA SYSTEM

Dear Dr. Henderson:

Enclosed are copies of McNeese State University's request for approval of its Letter of Intent to offer the Master of Science in Nutritional Sciences.

Please place this item on the ULS Board of Supervisors' agenda for consideration and approval at the February 28, 2020 meeting.

Thank you for your attention in this matter.

Sincerely,

Dr. Daryl V. Burckel
President

Enclosures

LOUISIANA BOARD of REGENTS

LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM [Oct 2015]

General Information

Date:

Institution: McNeese State University	Requested CIP, Designation, Subject/Title: 51.3101, Master of Science (MS), Nutritional Sciences
Contact Person & Contact Info: Frederick "Chip" Lemieux, Dean, College of Agricultural Sciences (337) 475-5691 flemieux@mcneese.edu	

1. Program Objectives and Content

Describe the program concept: purpose and objectives; basic structure and components/concentrations; etc. Include the draft curriculum.

The mission of the combined MS/dietetic internship (DI) program at MSU is to provide a progressive and effective program that integrates graduate education, research, service, and supervised practice to develop competent, entry-level registered dietitian nutritionists. The combined MS/DI program will assist the University in the fulfillment of its mission through its contributions of the MS/DI, concentration course offerings, and departmental faculty as well as the development of skills to:

- Cultivate skills for critical thinking and effective expression;
- Gain an understanding of the community;
- Integrate discipline-specific knowledge with the values of lifelong learning, ethical responsibility, and civic engagement;
- Engage in collaborative ventures to benefit industry and enhance economic development and cultural growth in Southwest Louisiana and the areas outside of the region; and
- Meet the students' academic, personal, and career goals of becoming registered dietitian nutritionists.

To further define the MS/DI program's mission, the following goals have been established. The program will:

Goal #1. Prepare graduates to become competent entry-level registered dietitian nutritionists.

Objectives for Goal #1:

- Of graduates who seek employment, 70% are employed in nutrition and dietetics or related fields within twelve months of Graduation.
- At least 80% of program interns complete program degree requirements within 27 months (150% of program length).
- The program's one-year pass rate (graduates who pass the registration exam within one year of first attempt) on the CDR credentialing exam for dietitian nutritionists is at least 80%.
- At least 80% of program graduates take the CDR credentialing exam for dietitian nutritionists within 12 months of program completion.
- At least 75% of employers who respond to a survey on program graduates in their first year of employment will rate them as above average in professional knowledge and skills as compared to entry-level registered dietitians from other internship programs.
- At least 90% of graduates employed in dietetics who respond to the alumni survey will rate themselves as prepared or well prepared for their first position.

Goal #2. Prepare graduates who demonstrate the ability to utilize current evidence-based research and apply the research process in professional practice.

Objectives for Goal #2:

- At least 80% of employers who respond to a survey on program graduates will agree/strongly agree that graduates are able to incorporate scientific research in their professional practice.
- At least 80% of graduates who respond to a survey on program graduates will agree/strongly agree that they feel competent to evaluate and incorporate current and relevant literature in their professional practice.
- At least 20% of graduates will present a poster session at the Louisiana Academy of Nutrition and Dietetics (LAND).

The program has set objectives with target measures to ensure that the graduates are able to function as competent, entry-level dietitian nutritionists who are able to utilize current evidence-based research in their professional practice. This is of interest to interns and the public since graduates should be prepared to provide quality nutritional services to the citizens of Louisiana and the nation to improve overall nutritional health and well-being. In addition, interns should be able to utilize the most current research in dealing with the public.

LOUISIANA BOARD of REGENTS

To continue with an MS/DI program, the University would like to change from graduates receiving a MS in Health and Human Performance with a concentration in Nutrition and Wellness to a MS in Nutritional Sciences to prepare for reaccreditation under the next set of accreditation standards from the Accreditation Council for Education in Nutrition and Dietetics (ACEND). This new MS in Nutritional Sciences program will meet the requirements of ACEND as it elevates the requirements of the degree to a MS degree and the requirements of the Commission on Dietetic Registration rule that graduates must have a master's degree to sit for the registration examination to become a registered nutritionist/dietitian.

As stated above, McNeese students are currently receiving a MS in Health and Human Performance with a concentration in Nutrition and Wellness. While we are planning to terminate this concentration upon receiving approval to offer the MS in Nutritional Sciences **effective Fall 2020**, the tables below demonstrate that pulling this concentration out of the MS in Health and Human Performance program will not negatively impact the program.

This first table compares the enrollment in the Nutrition and Wellness concentration to the total enrollment in the Health and Human Performance MS program over the last six academic years.

	2013-2014			2014-2015			2015-2016			2016-2017			2017-2018			2018-2019		
	U	F	S	U	F	S	U	F	S	U	F	S	U	F	S	U	F	S
NUWL	10	20	10	10	20	10	10	22	11	10	20	9	9	19	10	10	20	10
Total	30	54	43	22	49	38	22	54	43	17	57	53	28	61	46	24	45	35

This next table compares the completers in the Nutrition and Wellness concentration to the total completers in the Health and Human Performance MS program over the last six academic years.

	2013-2014			2014-2015			2015-2016			2016-2017			2017-2018			2018-2019		
	U	F	S	U	F	S	U	F	S	U	F	S	U	F	S	U	F	S
NUWL	0	10	0	0	10	0	0	10	0	0	10	0	0	9	0	0	10	0
Total	4	14	13	3	15	10	0	14	14	1	12	13	5	17	15	4	16	8

As demonstrated by the data above, the MS in Health and Human Performance program would still have very strong enrollment and completers after pulling out the Nutrition and Wellness concentration.

The MS in Nutritional Sciences program would require students to complete graduate coursework and supervised practice hours at the same time with appropriate classes. The program would cover Fall, Spring, Summer, Fall semesters. Students would complete 39 credit hours and 1344 hours of supervised practice.

MS in Nutritional Sciences Curriculum

Fall Semester

AGRI 604 - Research Methods (Cr. 3)
 NFSC 604 - Advanced MNT (Cr. 3)
 NFSC 603 - Advanced Nutrition and Metabolism (Cr. 3)
 NFSC 610 - Dietetic Clinical I (Cr. 3)
 Total: 12 hours

Spring Semester

AGRI 606 - Statistics (Cr. 3)
 NFSC 606 - Food Systems Management (Cr. 3)
 NFSC 608 - Nutrition and Dietetics Research (Cr. 3)
 NFSC 620 - Dietetic Clinical II (Cr. 3)
 Total: 12 hours

Summer Semester

NFSC 602 - Independent Study in Nutrition and Wellness (Cr. 3)
 NFSC 630 - Dietetic Internship I (Cr. 3)
 Total: 6 hours

Fall Semester

NFSC 605 - Special Topics in Food and Nutrition (Cr. 3)
 NFSC 607 - Community Nutrition (Cr. 3)
 NFSC 640 - Dietetic Internship II (Cr. 3)
 Total: 9 hours

2. Need

Outline how this program is deemed essential for the wellbeing of the state, region, or academy (e.g., accreditation, contribution to economic development; related to current or evolving needs within state or region). Cite data to support need: employment projections; supply/ demand data appropriate to the discipline and degree level. Also, identify similar programs in the state and explain why the intended one should not be perceived as unnecessary duplication.

The Accreditation Council for Education in Nutrition and Dietetics (ACEND) ensures the quality of nutrition and dietetics education to advance the practice of the profession. ACEND is advancing the BS degree to a MS degree due to the Commission on Dietetic Registration rule that graduates must have a master's degree to sit for the registration examination to become a registered nutritionist/dietitian. To prepare for the next reaccreditation of the program, MSU needs a Master of Science in Nutritional Sciences program to comply with the accreditation standards. Preparation for practice as a dietitian nutritionist is moving to the graduate level with generalist preparation occurring at the master's level and elevating the educational preparation for the future entry-level RDN to a minimum of a graduate degree from an ACEND-accredited program. ACEND requires an ACEND-accredited graduate degree program and/or consortium that integrates both the academic coursework and supervised practice components into a seamless (one-step) program as a requirement to obtain the future entry-level RDN credential.

According to CareerPlanner, employment of dietitians and nutritionists is projected to grow 14 percent from 2016 to 2026, faster than the average for all occupations. Dietitians and nutritionists who have earned advanced degrees or certification in a specialty area may enjoy better job prospects (<https://job-outlook.careerplanner.com/Dietitians-and-Nutritionists.cfm>).

According to the U.S. Bureau of Labor Statistics, employment of dietitians and nutritionists is projected to grow 11 percent from 2018 to 2028, much faster than the average for all occupations. The role of food in preventing and treating diseases, such as diabetes, is now well known. More dietitians and nutritionists will be needed to provide care for patients with various medical conditions and to advise people who want to improve their overall health (<https://www.bls.gov/ooh/healthcare/dietitians-and-nutritionists.htm>).

Currently in the state there are BS degree programs associated with Louisiana State University, McNeese State University, Louisiana Tech University, and Nicholls State University. Graduates must then complete a dietetic internship program and currently the universities providing dietetic internship programs are Southern University A&M College, McNeese State University, Louisiana Tech University, and Nicholls State University. Louisiana State University and Louisiana Tech University offer MS degrees; LSU offers a MS in Nutrition and Food Science with a concentration in Human Nutrition, and LA Tech offers a MS in Nutrition and Dietetics. McNeese State University is the only university that requires a combined MS/DI program to receive a verification statement to graduate. As mentioned above, McNeese interns are currently receiving a MS in Health and Human Performance with a concentration in Nutrition and Wellness to meet this requirement.

From 1994-2018, 203 graduates have completed the MSU program. Of the 203 graduates, 149 (73%) have graduated from undergraduate dietetic programs in Louisiana: 83 (55%) from MSU, 33 (22%) from LSU, 24 (16%) from ULL, 2 from Nicholls, 1 from LA Tech, 1 from Southern, and 54 (26%) from programs outside of Louisiana. The combined MS/DI program began in 2009 and there have been 97 graduates: 22 (23%) from MSU, 8 (.08%) from ULL, 21 (22%) from LSU, 3 (.03%) from Nicholls, and 43 (44%) from programs outside of Louisiana. Out of the 203 graduates, 114 (56%) are employed in Louisiana.

3. Relevance

Explain why this program is an institutional priority at this time. How will it (a) further the mission of the institution and (b) increase the educational attainment or quality of life of the people of Louisiana.

All academic programs at McNeese State University emphasize in-depth disciplinary knowledge and its application to academic and professional environments. McNeese graduates achieve success through the studied acquisition of content knowledge, the demonstration of discipline-specific skills and dispositions as well as mastery of general education competencies such as critical thinking, effective communication, and independent learning. The combined MS/DI program will assist the University in the fulfillment of its mission through its contributions of the MS/DI, concentration course offerings, and departmental faculty, as well as the development of skills to:

- Cultivate skills for critical thinking and effective expression;
- Gain an understanding of the community;
- Integrate discipline-specific knowledge with the values of lifelong learning, ethical responsibility, and civic engagement;
- Engage in collaborative ventures to benefit industry and enhance economic development and cultural growth in Southwest Louisiana and the areas outside of the region; and
- Meet the students' academic, personal, and career goals of becoming registered dietitian nutritionists.

LOUISIANA BOARD of REGENTS

4. Students

Summarize student interest/demand for the proposed program.

The program receives approximately 35-45 applications each year and selects 10 students to begin the program each fall semester.

5. Cost

Estimate new/additional costs of the projected program for the first five years. Indicate amounts to be absorbed out of current sources of revenue and needs for additional appropriations (if any). Commit to provide adequate funding to initiate and sustain the program. On the separate budget form, estimate new costs and revenues for the first four years.

At this time, no additional costs/revenue are expected. The administrative and teaching faculty to facilitate the program have been in place for ten (10) years. Currently, budgets are established to meet the needs of this program.

CERTIFICATION:



Chief Academic Officer

1-2-20

Date

Management Board

Date of Approval by Board

LOUISIANA BOARD of REGENTS

SUMMARY OF ESTIMATED ADDITIONAL COSTS/INCOME FOR INTENDED PROGRAM

Institution: McNeese State University

Date: October 8, 2019

Degree Program, Unit: Master of Science in Nutritional Sciences, Harold and Pearl Dripps School of Agricultural Sciences

FTE = Full Time Equivalent (use the institution's standard definition and provide that definition).

EXPENDITURES								
INDICATE ACADEMIC YEAR:	FIRST		SECOND		THIRD		FOURTH	
	AMOUNT	FTE	Amount	FTE	AMOUNT	FTE	AMOUNT	FTE
Faculty	\$		\$		\$		\$	
Graduate Assistants								
Support Personnel								
Fellowships and Scholarships								
SUB-TOTAL	\$0		\$0		\$0		\$0	
	AMOUNT		AMOUNT		AMOUNT		AMOUNT	
Facilities	\$		\$		\$		\$	
Equipment								
Travel								
Supplies								
SUB-TOTAL	\$0		\$0		\$0		\$0	
TOTAL EXPENSES	\$0		\$0		\$0		\$0	
REVENUES								
Revenue Anticipated From:	AMOUNT		AMOUNT		AMOUNT		AMOUNT	
*State Appropriations	\$		\$		\$		\$	
*Federal Grants/Contracts								
*State Grants/Contracts								
*Private Grants/Contracts								
Expected Enrollment								
Tuition								
Fees								
*Other (specify)								
TOTAL REVENUES	\$0		\$0		\$0		\$0	

* Describe/explain expected sources of funds in proposal text.

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

- Item F.4.** **McNeese State University's** request for approval of a Memorandum of Understanding between McNeese State University's College of Business and Sowela Technical Community College's School of Business and Applied Technology.

EXECUTIVE SUMMARY

McNeese State University (MSU) requests approval to enter into a Memorandum of Understanding (MOU) with Sowela Technical Community College (STCC). The purpose of the proposed MOU is to establish a four-year pathway in which a student can receive an Associate of Applied Science in Business Administration from STCC and a Bachelor of Science in Management, Marketing or Business Administration from McNeese. The proposed MOU outlines the terms of the agreement (courses, admission requirements, etc.) and will facilitate transfer between the MSU and STCC. Upon approval, the MOU will go into effect for Fall 2020 and will run for an initial five-year period. The agreement will be reviewed annually, and may be renewed after completion of the initial five years for another cycle.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves McNeese State University's request for approval of a Memorandum of Understanding between McNeese State University's College of Business and Sowela Technical Community College's School of Business and Applied Technology.



F 4

February 5, 2020

RECEIVED

FEB 06 2019

UNIVERSITY OF
LOUISIANA SYSTEM

Dr. James B. Henderson, President
University of Louisiana System
1201 North Third Street
Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Henderson:

Enclosed are copies of McNeese State University's request for approval of the enclosed Memorandum of Understanding between McNeese State University College of Business and Sowela Technical and Community College School of Business and Applied Technology.

Please place this item on the ULS Board of Supervisors' agenda for consideration and approval at the February 28, 2020 meeting.

Thank you for your attention in this matter.

Sincerely,

Dr. Daryl V. Burckel
President

Enclosures

**McNeese State University
College of Business
&
SOWELA Technical and Community College
School of Business & Applied Technology**

**Memorandum of Understanding
Associate to Bachelor's Degree in Business**

A. Terms and Benefits

Terms:

- Upon completion of the Associate of Applied Science Degree in Business Administration with a concentration in General Business from SOWELA Technical and Community College (STCC), up to 57 credits identified herein can be transferred and applied towards a Bachelor's Degree with a major in Accounting, Finance, Management, Marketing, or General Business from the College of Business at McNeese State University (MSU).
- The remaining credits will be taken at MSU to complete the 120-hour B.S. degree.
- This Agreement applies to the School of Business & Applied Technology at STCC and the College of Business at MSU.
- This program opportunity will be advertised on the STCC college website. MSU will advertise this program opportunity primarily among transfer student advisees in an effort to ensure that all STCC transfer students are aware of this Agreement.
- No new materials have been developed as part of this Agreement.
- STCC and MSU agree to work together to maintain this relationship, its efficiency, and quality of instruction, and to adapt to curricula changes at either institution.
- MSU will collect and share information with STCC, including data relative to enrollments, performance, and graduation rates for students participating in this program. Both institutions will use this information to identify areas for improvement.
- Relevant personnel at STCC (Dean of the School of Business & Applied Technology) and MSU (Dean of the College of Business) will meet annually to discuss the overall progress of this Agreement, student performance, and any changes in curricula.
- This Agreement will start at the beginning of the fall 2020 semester and run for an initial 5-year period. The Agreement will be reviewed annually, and may be renewed after completion of a 5-year cycle for another 5-year cycle. Modification of the Agreement within the 5-year period can be accomplished with written permission from representatives of both institutions. Either institution can cancel the Agreement prior to the start of the next semester with 30 calendar day written notice.

Benefit to a Student:

This Agreement identifies a 4-year pathway in which a student can receive his or her Associate of Applied Science degree in Business Administration at STCC and a Bachelor of Science degree in Business with a major in Management, Marketing or Business Administration from the College of Business at MSU. As part of this agreement the following must be met:

1. Students must meet any University-mandated admission requirements for transfer students at MSU.
2. For this Agreement, only coursework completed at STCC with a grade of "C" or better can count toward the MSU degree.

B. Transfer Articulation

SOWELA TECHNICAL AND COMMUNITY COLLEGE			MCNEESE STATE UNIVERSITY		
COURSE	COURSE TITLE	CRD	COURSE	COURSE TITLE	CRD
ACCT 2030	FINANCIAL ACCOUNTING	3	ACCT 208	ACCOUNTING PRINCIPLES	3
ACCT 2040	MANAGERIAL ACCOUNTING	3	ACCT 241	MANAGERIAL PRINCIPLES	3
BUSI 1030	INTRODUCTION TO BUSINESS	3	BADM 120	TOPICS IN CONTEMPORARY BUSINESS	3
BUSI 1090	PERSONAL FINANCE	3	FIN 201	PERSONAL FINANCE	3
BUSI 2010	LEGAL ENVIRONMENT OF BUSINESS	3	BADM 201	LEGAL ENVIRONMENT	3
BUSI 2300	BUSINESS COMMUNICATIONS	3	ENGL 253	PROFESSIONAL WRITING	3
BUSI 2310	PRINCIPLES OF MANAGEMENT	3	MGMT 300	PRINCIPLES OF MANAGEMENT*	3
BUSI 2320	PRINCIPLES OF MARKETING	3	MKTG 320	PRINCIPLES OF MARKETING*	3
BUSI 2330	BUSINESS ETHICS	3	BADM 218	ISSUES IN GLOBAL BUSINESS	3
ECON 2010	PRINCIPLES OF MACROECONOMICS	3	ECON 204	MACROECONOMICS	3
ECON 2020	PRINCIPLES OF MICROECONOMICS	3	ECON 203	MICROECONOMICS	3
ITEC 1000/OADM 1150	COMPUTER APPLICATIONS	3	CSCI 321	INFORMATION SYSTEMS ANALYSIS*	3
OADM 1330	INTRO TO SPREADSHEETS	3	OSBC 207	MICROSOFT EXCEL FOR BUSINESS	3

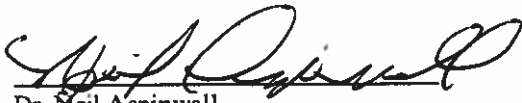
General Education Courses

SOWELA TECHNICAL AND COMMUNITY COLLEGE			MCNEESE STATE UNIVERSITY		
COURSE	COURSE TITLE	CRD	COURSE	COURSE TITLE	CRD
BIOL 1010	GENERAL BIOLOGY I	3	BIOL 105	LIVING WORLD I	3
BIOL 1020	GENERAL BIOLOGY II	3	BIOL 106	LIVING WORLD II	3
ENGL 1010	COMPOSITION I	3	ENGL 101	ENGLISH COMPOSITION I	3
ENGL 1020	COMPOSITION II	3	ENGL 102	ENGLISH COMPOSITION II	3
ENGL 2010	BRITISH LITERATURE I	3	ENGL 201	SURVEY OF BRITISH LITERATURE I	3
ENGL 2020	BRITISH LITERATURE II	3	ENGL 202	SURVEY OF BRITISH LITERATURE II	3
HIST 2010	UNITED STATES HISTORY I	3	HIST 201	AMERICAN HISTORY TO 1877	3
HIST 2020	UNITED STATES HISTORY II	3	HIST 202	AMERICAN HISTORY SINCE 1877	3
MATH 1100	COLLEGE ALGEBRA	3	MATH 113	COLLEGE ALGEBRA	3
MATH 1305	MATHEMATICS FOR BUSINESS & SOCIAL SCIENCES	3	MATH 130	FINITE MATHEMATICS	3
MATH 2100	ELEMENTARY STATISTICAL METHODS	3	MATH 231 or STAT 231	ELEMENTARY PROBABILITY AND STATISTICAL INFERENCE	3
MATH 1110	PRE-CALCULUS MATH	3	MATH 175	PRECALCULUS II	3
PSYC 2010	GENERAL PSYCHOLOGY	3	PSYC 101	INTRODUCTION TO PSYCHOLOGY	3
SPCH 1200	INTERPERSONAL COMMUNICATIONS	3	COMM 201	INTERPERSONAL COMMUNICATIONS	3

NOTE: The Louisiana Board of Regents requires the successful completion of at least 40 credit hours of coursework at the 300-level or above. Equivalencies between 200-level courses at STCC and 300-level courses at McNeese are listed for course content only but will not count toward the required 40 credits of upper-level coursework. Courses labeled as 300-level equivalences at McNeese in the above charts will transfer at the level at which they were taken at STCC. In this instance, McNeese will waive its course requirement(s) upon verification that the student has successfully completed the same course content at STCC. Student must comply with remaining 300-level courses at MSU to fulfill upper level requirement at MSU

Signatures and Contact Information:

Dr. Neil Aspinwall
Chancellor
SOWELA Technical Community
College
3820 Senator J. Bennett Johnston Avenue
Lake Charles, LA 70615
P: 337-421-6501
E: neil.aspinwall@sowela.edu



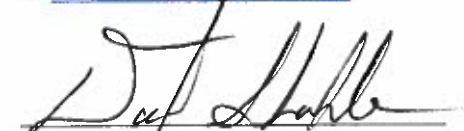
Dr. Neil Aspinwall
Chancellor, SOWELA Technical
Community College

Dr. Paula Hellums
Vice Chancellor for Academic
Affairs
SOWELA Technical Community
College
3820 Senator J. Bennett Johnston Avenue
Lake Charles, LA 70615
P: 337-421-6965
E: paula.hellums@sowela.edu



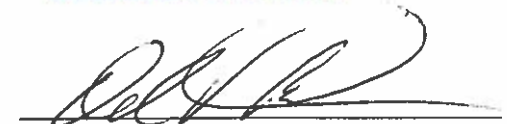
Dr. Paula Hellums
Vice Chancellor, SOWELA Technical
Community College

Dr. David Shankle
Dean
School of Business & Applied
Technology
3820 Senator J. Bennett Johnston Avenue
Lake Charles, LA 70615
P: 337-421-6988
E: david.shankle@sowela.edu



Dr. David Shankle
Dean, SOWELA School of Business
& Applied Technology

Dr. Daryl Burckel
President
McNeese State University
4205 Ryan Street, Burton Business Cntr.
Lake Charles, LA 70609
P: 337-475-5508
E: dburckel@mcneese.edu



Dr. Daryl Burckel
MSU President

Dr. Mitchell Adrian
Provost and Vice President of Academic
Affairs and Enrollment Management
McNeese State University
4205 Ryan Street, Burton Business Cntr.
Lake Charles, LA 70609
P: 337-475-5508
E: madrian@mcneese.edu



Dr. Mitchell Adrian
MSU Vice President & Provost of Academic
Affairs

Dr. Wade Rousse
Dean
College of Business
McNeese State University
4205 Ryan Street, Burton Business Cntr.
Lake Charles, LA 70609
P: 337-475-5514
E: wrousse1@mcneese.edu



Dr. Wade Rousse
Dean, MSU College of Business

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

Item F.5. **Northwestern State University's** request for approval of the University's revised *Mission, Vision, and Values* statements.

EXECUTIVE SUMMARY

Northwestern State University (Northwestern) requests consideration and approval of the University's *Mission, Vision, and Values* statements. Over the past six months, the University conducted a deliberate, holistic, and thoughtful analysis of its mission, roles, and functions. The result of this endeavor is a forward-looking mission statement that is inclusive, embraces diversity, anticipates change, and facilitates educational access and attainment to better prepare students to positively impact the socio-economic condition of the region, state, and nation.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves Northwestern State University's request for approval of the University's revised *Mission, Vision, and Values* statements.



NORTHWESTERN STATE

Office of the President

310 Sam Sibley Drive
Caspari Hall - Suite 223
Natchitoches, LA 71497
(O) 318-357-6441
(F) 318-357-4223

F 5

January 23, 2020

RECEIVED

FEB 06 2019

UNIVERSITY OF
LOUISIANA SYSTEM

Dr. Jim Henderson, President
University of Louisiana System
1201 North Third Street, 7-300
Baton Rouge, LA 70802

Re: Request to Revise *NSU Mission, Vision, and Values*

Dear Dr. Henderson:

Northwestern State University requests that its revised *Mission, Vision, and Values* statements be placed on the agenda for approval at the February 2020 Board meeting.

Thank you very much for your consideration.

Sincerely,

Dr. Chris Maggio
President

Attachment

DEDICATED TO ONE GOAL. **YOURS.**





January 6, 2020

Dr. Jim Henderson, President
University of Louisiana System
1201 North Third St., Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Henderson:

Northwestern State University requests consideration and approval of the following item at the February 2020 meeting of the Board of Supervisors for the University of Louisiana System (ULS), Northwestern's *Mission, Vision, and Values*. If approved, the transition from old to new mission statement would become effective 1 July 2020.

Over the past six months, Northwestern has conducted a deliberate, holistic, and thoughtful analysis of its mission, roles, and functions in concert with the Louisiana Constitution, Article VIII, 5D (4), Acts 241 of 1987 and 1360 of 1997, the specified tasks per the Board of Regents Master Plan 2011, revised 2012, Northwestern State University Strategic Plan *Assessment 2018-2019 – Building Momentum*, and the 2019 Board of Regents Master Plan, *Louisiana Prospers: Driving Our Talent Imperative*.

The result is a forward-looking mission statement that is inclusive, embraces diversity, anticipates change, and facilitates education access and attainment to better prepare our students to positively impact the socio-economic conditions of our region, state, and nation.

New Mission Statement. Northwestern State University is a responsive, student-oriented institution committed to acquiring, creating, and disseminating knowledge through innovative teaching, research, and service. With its certificate, undergraduate, and graduate programs, Northwestern State University prepares its increasingly diverse student population to contribute to an inclusive global community with a steadfast dedication to improving our region, state, and nation.

Old Mission Statement for reference: Northwestern State University is a responsive, student-oriented institution that is committed to the creation, dissemination, and acquisition of knowledge through teaching, research, and service. The University maintains as its highest priority excellence in teaching in graduate and undergraduate programs. Northwestern State University prepares its students to become productive members of society and promotes economic development and improvements in the quality of life of the citizens in its region.

DEDICATED TO ONE GOAL. **YOURS.**



Vision (no change). Northwestern State University will become the nation's premier regional university through the innovative delivery of transformative Student learning experiences that prepare graduates for life and career success.

Core Values (Re-worked "We are future focused" to delete "*We do not rest on our laurels.*") Our core values capture the guiding principles for how we make decisions and work together. They are the foundation for the type of University community and regional partner we strive to become. Our guiding values are:

Our Students are our priority. We provide each Student with transformational and experiential learning experiences to assist in the development of an ever-growing individual, scholar, and professional.

Diversity helps define who we are. We welcome and respect everyone traveling on a journey for knowledge. Differences make us stronger.

We are future focused. We are in constant search of individual and organizational improvement by seeking new, inclusive, and innovative opportunities to develop our students and improve our University.

Innovation leads the forward edge of change. We strive to be on the forefront in all we do.

We honor and respect the ideals of freedom. We protect the freedom of all members of our community to seek truth and express their views.

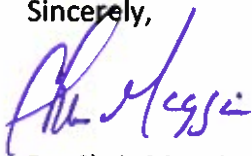
We are careful stewards. We responsibly and sustainably manage the economic and natural resources entrusted to us.

Integrity is our cornerstone. We hold ourselves to the highest ethical standards as educators, scholars, Students, and professionals.

We are a team. We are a collaborative community that focuses on ensuring the success of every member.

We thank you for your leadership and continued support. The point of contact for this action is the undersigned.

Sincerely,



Dr. Chris Maggio
President

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

Item F.6. **Southeastern Louisiana University's request for approval to offer Undergraduate Certificates in Digital Health Management and Population Health Management.**

EXECUTIVE SUMMARY

Southeastern Louisiana University (SLU) requests approval to offer Undergraduate Certificates (UCs) in Digital Health Management and Population Health Management. In February 2019 the Board of Regents approved the addition of a new upper level Undergraduate Certificate (UC) in *Academic Affairs Policy 2.15, Definitions of Undergraduate Degrees & Undergraduate/Graduate Certificates*. Designed as a focused, incremental, stackable credential, the UC can be linked to an existing degree program major as an additional focus area (concentration or minor), or it can be a stand-alone area of specialization to augment a student's educational background and/or to meet industry demand for upper level training. The certificate is comprised of at least 18 credits, of which at least half must be at the upper (junior/senior) level.

The proposed **UC in Digital Health Management** is designed to prepare students for careers in healthcare with high demand knowledge and job skills related to: electronic/personal health records, telehealth and remote patient monitoring technology, telecare, telemedicine, patient self-monitoring, ambient assisted living, and smart systems, incorporating both on-demand and scheduled telehealth visits into daily clinical workflows, data management and analysis, and health informatics. The 18 credit hour curriculum utilizes existing courses from SLU's Health System Management degree, Nursing degree, and interprofessional education courses. Coursework required of the proposed UC includes technology, chronic disease management, data analytics, health informatics, and case management. Growth in digital health, including telehealth, remote patient monitoring, data analytics for decision making and digital health technologies has created a need in the healthcare industry for employees with the related training.

The purpose of the **UC in Population Health Management** is to prepare students for careers in health systems and community health agencies. Population Health Management will teach students data and analytics to identify at-risk patients in preventive, acute care and long-term care and then target services that reduce their use of expensive and low-quality care. Using population health models of care, students will learn to deploy innovative delivery models; analyzing data and trends in a population's health, quality, and costs; and value-based payment models. The proposed UC requires 21 credit hours with 18 of those structured as hybrid courses with self-paced activities to meet course objectives; the certificate will be able to be completed in six months.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves Southeastern Louisiana University's request to offer Undergraduate Certificates in Digital Health Management and Population Health Management.

February 5, 2020

Dr. James B. Henderson, President
University of Louisiana System
1201 North Third Street, Suite 7-300
Baton Rouge, LA 70802

Re: Proposal to Develop Two New Undergraduate Certificate (UC) Programs
UC in Digital Health Management
UC in Population Health Management

Dear Dr. Henderson:

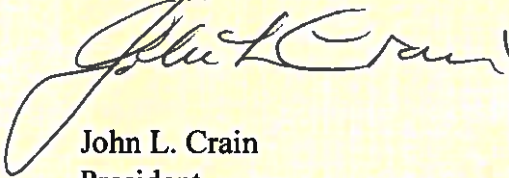
Southeastern Louisiana University requests that its proposals to develop two undergraduate certificates in Health Management be placed on the agenda for the February 2020 meeting of the University of Louisiana System Board of Supervisors.

The purpose of the UC in Population Health Management is to prepare students for careers in health systems and community health agencies. Population Health Management will teach students data and analytics to identify at-risk patients in preventive, acute care and long-term care and then target services that reduce their use of expensive and low-quality care. The certificate requires 21 hours with 18 of those structured as hybrid courses with self-paced activities to meet course objectives. Adult learners will be able to complete the certificate in six months.

The purpose of the UC in Digital Health Management is to prepare students for careers in healthcare with high demand knowledge and job skills related to: electronic/personal health records, telehealth and remote patient monitoring technology, telecare, telemedicine, patient self-monitoring, ambient assisted living (AAL), and smart systems, incorporating both on-demand and scheduled telehealth visits into daily clinical workflows, data management and analysis, and health informatics. The certificate requires 18 hours with 15 of those structured as hybrid courses with self-paced activities to meet course objectives. Adult learners will be able to complete the certificate in six months.

Your consideration of this request is appreciated.

Sincerely,



John L. Crain
President

Attachments

LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM [Jan2018]

General Information

Date: February 4, 2020

Institution: Southeastern Louisiana University (SLU)	Requested CIP, Designation, Subject/Title: <u>Undergraduate Certificate, Digital Health Management</u>
Contact Person & Contact Info: Dr. Tena L. Golding, Provost and Vice President for Academic Affairs provost@southeastern.edu Phone: (985) 549-2316 Fax: (985) 549-2304 SLU 10798 Hammond, LA 70402	

1. Program Objectives and Content

Describe the program concept: purpose and objectives; basic structure and components/concentrations; etc. Include the draft curriculum.

The proposed undergraduate certificate in Digital Health Management was developed to provide adult learners with job skills and knowledge that are in high demand in today's workforce. The final certificate design is industry-based and employer-driven and was created to help fill the gaps in the current workforce talent pipeline. Certificate holders will be able to demonstrate needed knowledge and skills required to transform health through mobile technologies to meet the rapidly changing needs of the industry now and in the future. Offering undergraduate certificates for adult learners also contributes to the Louisiana Board of Regents Master Plan, which calls for 60% of all working-age adults (25-64) to hold a degree or high value-credential by 2030.

The certificate is relevant for both current undergraduate students as well as bachelor's degree holders who want to update their workforce skillset, providing them with expanded career opportunities at a higher pay scale. The purpose of the program is to prepare students for careers in healthcare with high demand knowledge and job skills related to: electronic/personal health records, telehealth and remote patient monitoring technology, telecare, telemedicine, patient self-monitoring, ambient assisted living (AAL), and smart systems, incorporating both on demand and scheduled telehealth visits in to daily clinical workflows, data management and analysis, and health informatics.

For those who already have a bachelor's degree, the program will provide these individuals with the digital health knowledge needed to either advance their current career, make a career change, or be better prepared to re-enter the workforce. Certificates, combined with an appropriate bachelor's degrees will prepare students for a variety of mid-level work settings including: hospitals, health care clinics, consulting companies, government health services, insurance providers, community facilities, technology and data management companies, and not-for-profit as well as managed care organizations. All students will understand the requirements of privacy, security and confidentiality in the healthcare environment.

Objectives:

- * Examine the use of technology for expanding capacity to deliver health care services and education.
- * Explore major conceptual and methodological issues associated with designing, implementing, and evaluating the effectiveness of technology-enhanced interventions.
- * Identify technology to provide direct-to-consumer services as well as remote monitoring and care.
- * Assess and ensure confidential information is transferred and exchanged using technology takes within a secure platform
- * Apply principles of data analytics to trended data collected through remote access and monitoring.
- * Demonstrate competencies with use of technologies in a variety of health care settings.
- * Effectively combine clinical knowledge with digital data in decision making.
- * Apply best practices and program competencies to achieve digital transformation in healthcare.

Basic Structure: The proposed certificate uses existing interdisciplinary Southeastern courses from the Health System Management degree (HSM-Department of Health and Human Sciences), Nursing degree (NURS - School of Nursing) and interprofessional education courses (HSCI-College of Nursing and Health Sciences). The certificate requires 18 credit hours and includes coursework in technology, chronic disease management, data analytics, health informatics, and case management. All courses, except HCSI 464, Interprofessional Education, Practice, and Research in the Health Sciences,

are structured as hybrid courses with self-paced activities to meet course objectives. Adult learners will be able to complete the certificate in six months. HCSI 464 is structured to serve as an unpaid apprenticeship-style course, with students given a combination of practical experiences providing them hands on training in telehealth, digital home monitoring, compliance, quality improvement, health security and privacy, and predictive and health data analytics. Southeastern will work with its network of area employers to create these experiential learning opportunities. Adult learners already working in the health care field will have the potential to “earn while they learn” by engaging in “on the job training” where they will be able to demonstrate required competencies for credit. To matriculate working adults more seamlessly to the certificate program, dedicated advisors will evaluate transfer credits and award credit through prior learning assessment, when possible. Southeastern faculty will assist all students in obtaining, tailoring, and/or creating, these apprenticeship opportunities.

Proposed Schedule

Spring 1 st 8 Weeks		Spring 2 nd 8 Weeks		May interim	Summer Term I
HSM 215	HSM 250	NURS 313	HSM 375	HSM 410	HSCI 464

Draft Curriculum:

Course	Credit	Description
HSM 215: Microcomputer Applications for Healthcare	3	This course exposes students to hands-on usage of microcomputer applications needed by healthcare systems management majors word processing, spreadsheets, database management and graphics, and other relevant applications as developed.
HSM 250: Principles and Practices of Case Management	3	Students will explore the role of the case manager in a managed care environment. Principles of practice, historical and philosophical framework, roles and responsibilities of the case manager, disease management, and quality and outcomes management are all addressed.
Nursing 313. Study of Human Diseases (Chronic Disease Management)	3	The course builds upon a student’s understanding of human anatomy and integrates the study of human disease with focus on the risk factors, clinical manifestations, pathology, and prevention. Common disease states in the adult population will be studied. The intent of the course is to prepare health educators to identify, screen, and teach populations at risk.
HSM 375: Data Management	3	Students will learn the skills and competencies in health data structures, usage, and data collection tools, data quality assessment and integrity, types and content of health records, and health information standards and regulations for documentation.
HSM 410: Health Informatics	3	An introduction to project planning, management, evaluation, and the adoption of new technologies in diverse healthcare settings. Topics include competencies in evaluating medical practice workflow and functional needs of end-users, evaluating data infrastructure and information technology processes and systems, and analyzing the fiscal and human resource commitment needed in all phases of implementing and adopting new technologies.
HSCI 464: Interprofessional Education, Practice, and Research in the Health Sciences	3	This course emphasizes interprofessional education and collaborative practice in the core competencies of ethics, role and responsibilities, communication and team work across healthcare settings and professions. Current issues, trends and practice strategies will be explored within interactive learning and practice opportunities. This course will serve to engage employers and students in apprenticeship opportunities to meet Digital health competencies.

2. Need

Outline how this program is essential for the wellbeing of the state/region/academy (e.g., accreditation, contribution to economic development; related to current or evolving needs within state or region). Cite data to support need: employment projections; supply/demand data appropriate to the discipline and degree level. Also, identify similar programs in the state and explain why the intended one should not be perceived as unnecessary duplication.

The program was developed to meet the needs of local employers as well as state and regional employment trends. The final certificate design is industry-based and employer driven to fill the gaps in the current workforce talent pipeline. The growth in digital health, including telehealth, remote patient monitoring, data analytics for decision making and digital health technologies (e.g. wearables) has created a need in the health care industry for employees with the related training.

The Louisiana Department of Labor reports that the health care and social services industry is expected to grow by 11.7% statewide and 13.9% in Region 2 (Southeastern's workforce region) by 2026. Ambulatory care, including clinics and physician practices are expected to grow by 16.2% in the state and 19% in the region by 2026. This growth in ambulatory care will be a significant driver in the need for digital health personnel. All health care systems will need digital health personnel, as they expand their use of telehealth, data analytics, and remote patient monitoring in order to improve patient health outcomes.

While there are other degree programs in the state that offer various eHealth type courses, there is not currently a comprehensive undergraduate Digital Health Management certificate. Importantly, programs offering eHealth courses do not emphasize practice-based competencies working directly with people/populations with chronic diseases. This will be the first type of certificate program addressing the growing need for health care employees to be competent in objectives listed earlier in this proposal.

3. Relevance

Explain why this program is an institutional priority at this time. How will it (a) further the mission of the institution and (b) increase the educational attainment or quality of life of the people of Louisiana.

Southeastern works closely with local employers in developing the programs and courses of study offered. Employers have had an increased demand for employees with digital health skills. Currently, employers are providing on the job training for these job skills as the proposed skill sets are not provided in undergraduate courses.

- (a) **Mission:** Southeastern's mission is to lead the educational, economic and cultural development of southeast Louisiana. The Digital Health Management certificate furthers this mission by meeting the educational needs of the region while promoting economic growth by increasing the digital skill set of the workforce throughout Louisiana.
- (b) **Educational attainment and quality of life:** The proposed program will provide students with a six-month pathway that will increase their level of educational attainment while developing in demand digital health knowledge and job skills. Quality of life will be improved as more community members obtain desirable job skills and subsequent higher wages. The program will: 1) prepare undergraduate students to enter the workforce and secure high paying jobs that are in demand; 2) provide current workers with a pathway to obtaining in demand skills and higher wages; 3) provide workers who want to re-enter the workforce with a pathway to obtaining updated and in demand skills, increasing their economic potential.

Furthermore, the proposed certificate is in alignment with the Board of Regent's 2030 Master Plan. Implementation of the program will move SLU towards attaining goals by:

1. **Expanding accessibility** – The proposed certificate provides adult learners, from anywhere in the state, a employer recognized credential; offered as a combination of distance learning (hybrid courses) with self-paced activities to meet course objectives, and the flexibility of completing the unpaid apprenticeship-style course through a local healthcare employer. This includes the potential for adult learners who are currently in the healthcare workforce to earn course credit through on-the-job training with an employer.
2. **Affordability** - The proposed certificate provides students with high demand job skills and knowledge in six months as either part of a current undergraduate program at SLU or as a non-degree seeking adult learner. To enhance applicability of content, simulated use of technology and data analytics will be supported using Open Educational Resources (OER) such as [Merlot II](#) , [OER Commons](#), and [TED ED](#).

Educational Resources (OER) such as Merlot II , OER Commons, and TED ED.

3. **Partnerships** - The certificate design is industry-based and employer-driven and was created to help fill the gaps in the current workforce talent pipeline. In designing the certificate requirements, faculty solicited input local health care employers. SLU faculty will work with area employers to ensure that each student can obtain, and/or create, the aforementioned apprenticeship opportunities. They will also survey employers who provided these experiences to ensure that students are receiving the appropriate level of skills training and knowledge to prepare them to excel in the apprenticeships as well as in the workforce following completion of the certificate program.
4. **Work-based learning** – Each student will be required to complete an apprenticeship as their final course. For students who are currently in the workforce and have a related position to Digital Health Management, it will be possible for them to complete the final course through on the job training and the demonstration of required skill competencies.
5. **Closing the achievement gap for the adult learner** – While SLU undergraduate students may elect to complete the certificate during their course of study at SLU, it is expected that two-thirds of those enrolled will be current health care workers (i.e. adult learners). The hybrid coursework and flexibility to use employment towards the required apprenticeship, these students will have the flexibility and accessibility they need to maintain their current career and personal commitment while earning an employer-driven and industry-based certificate.

4. Students

Summarize student interest/demand for the proposed program, and provide evidence (e.g., enr/completers of component courses or closely related minors, concentrations; details of program requests or interest surveys).

Estimate expected enrollment (majors) in first three years, and justify expectations.

Passage by the U.S. Congress of the *Patient Protection and Affordable Care Act* (PL 111-148), (i.e., The *Affordable Care Act, ACA*) has significantly expanded the role of healthcare professionals. Future medical and health services have rapidly integrated healthcare delivery systems to include technological innovations, an increasingly complex regulatory environment, restructuring of work, and an increased focus on preventive care. Digital health is a growing area requiring specialized skills. Employers have requested increasing curricula to ensure competency with eHealth skills.

There are currently no closely related minors or concentrations at Southeastern.

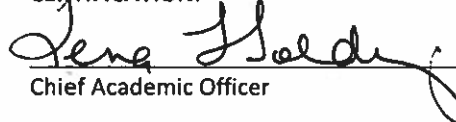
Expected Numbers of Students: Ten in year one; 18 in year two, 30 in year three. Initially, it can be expected that no more than 3-4 students enrolled at Southeastern and another 6-7 students from the existing workforce will participate in the 6-month program. As these individuals graduate and/or return to higher paying employment opportunities, we expect word-of-mouth as well as other employer-driven incentives to drive higher enrollment numbers.

5. Cost

Estimate new/additional costs of the projected program for the first five years, particularly for: faculty, equipment, software, facilities. Describe and explain expected funding sources, including needs for additional appropriations (if any). Commit to provide adequate funding to initiate and sustain the program.

The proposed certificate uses existing courses, space and faculty. Therefore, no additional costs are anticipated. Enrolled adult learners will pay tuition/fees and benefit from available Summer Smart scholarships. Additionally, with the exception of HSCI 464, students from the same or different programs will be enrolled in the same courses, providing cost saving strategies. The College of Nursing and Health Sciences is the largest college at Southeastern. In-house laboratory space and equipment are available for simulated experiences. These university-supported experiences, combined with long standing relationships with over 200 health care providers and systems, ensures success and sustainability of the certificate program.

CERTIFICATION:


Chief Academic Officer

2/6/2020
Date

Management Board
LA BoR – Jan 2018

Date of Approval by Board

LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM [Jan2018]

General Information

Date: February 5, 2020

Institution: Southeastern Louisiana University (SLU)

Requested **CIP, Designation, Subject/Title:**
Undergraduate Certificate, Population Health Management,

Contact Person & Contact Info:

Dr. Tena L. Golding, Provost and Vice President for Academic Affairs

provost@southeastern.edu

Phone: (985) 549-2316

Fax: (985) 549-2304

SLU 10798

Hammond, LA 70402

1. Program Objectives and Content

Describe the program concept: purpose and objectives; basic structure and components/concentrations; etc. Include the draft curriculum.

The proposed undergraduate certificate in Population Health Management was developed to provide adult learners with job skills and knowledge that are in demand in today's workforce. The final certificate design is industry-based and employer driven and was created to help fill the gaps in the current workforce talent pipeline. Certificate holders will be able to demonstrate needed labor skills that are in demand now with the need expected to only grow in the future. Offering undergraduate certificates for adult learners also contributes to the Louisiana Board of Regents Master Plan, which calls for 60% of all working-age adults (25-64) to hold a degree or high value-credential by 2030.

The certificate is appropriate for both current undergraduate students as well as bachelor's degree holders who want to update their workforce skillset, providing them with expanded career opportunities at a higher pay scale. The purpose of the program is to prepare students for careers in health systems and community health agencies including employment as 1) nurses or other clinical providers; 2) medical social workers; 3) health coaches; 4) health educators; 5) health administrators; 6) care coordinators; and 7) patient navigators by providing them academic education as well as job skills that are in high demand. Population Health Management will teach students data and analytics to identify at-risk patients in preventive, acute care and long-term care and then target services that reduce their use of expensive and low-quality care. Using population health models of care, students will learn to deploy innovative delivery models; analyzing data and trends in a population's health, quality, and costs; and value-based payment (VBP) models. All students will understand the requirements of privacy, security and confidentiality in the healthcare environment. For those who have a bachelor's degree, the program will provide these individuals with the population health management skills and knowledge needed to either advance their current career, make a career change into population health, or be better prepared to re-enter the workforce. Certificates, combined with an appropriate bachelor's degrees will prepare students for a variety of mid-level work settings including hospitals, health care clinics, consulting companies, government health services, insurance providers, community facilities, and not-for-profit as well as managed care organizations.

Objectives:

Completers will acquire skills necessary to:

1. identify determinants of population health that impact health outcomes in a community and apply the essentials of public health practice to design low cost interventions;
2. lead the formation and management of contemporary health care systems that consist of, and rely upon, diverse stakeholders in the organization and delivery of community-based models of care;
3. communicate effectively, through health coaching techniques, to manage population groups in health promotion and chronic disease management;
4. articulate and apply frameworks for collecting, analyzing, and using data to inform decisions, facilitate care coordination, and improve health outcomes of targeted populations within and outside the health system;
5. develop effective collaboratives and support health systems and community agencies efforts in assessing health needs, quality of services, and strategies for improving health services delivery;
6. understand and implement population health and VBP models of care ensuring privacy, security and confidentiality in the healthcare environment.

Basic Structure: The proposed certificate is comprised of existing interdisciplinary SLU courses from the Health Systems Management (HSM-Department of Health and Human Sciences), Health Sciences (HS Department of Kinesiology and Health Studies), Nursing (NURS- School of Nursing) and the College of Nursing and Health Sciences. The certificate requires 21 hours and includes coursework in population health, chronic human disease states, health informatics, social determinants of health and health disparities, health coaching and behavior change, data management, and practical experience in interprofessional education and practice. To increase accessibility to adult learners, all courses, except HCSI 464, Interprofessional Education, Practice, and Research in the Health Sciences, are structured as hybrid courses with self-paced activities to meet course objectives. Adult learners will be able to complete the certificate in six months. HCSI 464 is structured to serve as an unpaid apprenticeship-style course, with students given a combination of practical experiences providing them hands on training in chronic disease management, including reduction in readmission rates, remote monitoring of health outcomes, health coaching, data analytics and informatics. Southeastern will work with its network of area employers to create these experiential learning opportunities. Adult learners working in the health care field already, will have the potential to “earn while they learn” by engaging in “on the job training” where they will be able to demonstrate required competencies for credit. To matriculate working adults more seamlessly to the certificate program, dedicated advisors will evaluate transfer credits and award credit through prior learning assessment, when possible. Southeastern faculty will assist all students in obtaining, and/or creating, these apprenticeship opportunities.

Proposed Schedule

Spring 1 st 8 Weeks		Spring 2 nd 8 Weeks		May interim	Summer Term I
HS 312	HS 442	NURS 313	HSM 375	HSM 410	HCSI 464
HS 454					

Draft Curriculum:

Course	Credit	Description
HS 312: Population Health	3	This course highlights the concepts of population health, public health and interdisciplinary professional collaboration required to address the health needs of communities.
NURS 313. Study of Human Diseases – (Chronic Disease Management)	3	The course builds upon a student’s understanding of human anatomy and integrates the study of human disease with focus on the risk factors, clinical manifestations, pathology, and prevention. Common disease states in the adult population will be studied. The intent of the course is to prepare health educators to identify, screen, and teach populations at risk.
HSM 375 Data management	3	Students will learn the skills and competencies in health data structures, usage, and data collection tools, data quality assessment and integrity, types and content of health records, and health information standards and regulations for documentation.
HSM 410: Health Informatics	3	An introduction to project planning, management, evaluation, and the adoption of new technologies in diverse healthcare settings. Topics include competencies in evaluating medical practice workflow and functional needs of end-users, evaluating data infrastructure and information technology processes and systems, and analyzing the fiscal and human resource commitment needed in all phases of implementing and adopting new technologies.
HS 442: Social Determinants of Health	3	The course will provide an overview of the social determinants of health, health disparities, and the linkage between social epidemiology and health policy.

HS 454: Health Coaching for Behavior Change	3	Students will explore and apply principles of modifying health behaviors on an individual, group, and community level for the prevention of health problems or the adoption of healthy lifestyles. Emphasis is placed on introducing the role of the Health Coach and the use of Motivational Interviewing and counseling skills for assisting others in confronting personal health concerns.
HSCI 464: Interprofessional Education, Practice, and Research in the Health Sciences	3	This course emphasizes interprofessional education and collaborative practice in the core competencies of ethics, role and responsibilities, communication and team work across healthcare settings and professions. Current issues, trends and practice strategies will be explored within interactive learning and practice opportunities. This course will serve to engage employers and students in apprenticeship opportunities to meet Population health competencies.

2. Need

Outline how this program is essential for the wellbeing of the state/region/academy (e.g., accreditation, contribution to economic development; related to current or evolving needs within state or region). Cite data to support need: employment projections; supply/demand data appropriate to the discipline and degree level. Also, identify similar programs in the state and explain why the intended one should not be perceived as unnecessary duplication.

The program was developed to meet the needs of local employers as well as state and regional employment trends. The final certificate design is industry-based and employer driven and was created to help fill the gaps in the current workforce talent pipeline. With the implementation of VBP system, the health care industry is moving to population health models of care. The change to VBP and population health models of care, have created a need in the health care industry for employees who understand and can implement cost-effective strategies that benefit the community as a whole and improve the health of many segments of the population. (Institute of Medicine (US) Committee on Assuring the Health of the Public in the 21st Century. The Future of the Public's Health in the 21st Century. Washington (DC): National Academies Press (US); 2002. 2, Understanding Population Health and Its Determinants. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK221225/>)

The Louisiana Department of Labor reports that the health care and social services industry is expected to grow by 11.7% statewide and 13.9% in Region 2 (Southeastern's workforce region) by 2026. Ambulatory care, including clinics and physician practices are expected to grow by 16.2% in the state and 19% in the region by 2026. This growth in ambulatory care will be a major driver in the need for population health personnel. All health care providers will need Population Health Management personnel, as they expand their use of chronic disease management, health coaching for behavior change, data analytics, remote patient monitoring, VBP models, in order to improve patient health outcomes while ensuring privacy, security and confidentiality in the healthcare environment.

There is not currently a comprehensive undergraduate Population Health Management certificate. Delgado offers a certificate in Health Coaching in partnership with LSU School of Public Health. This proposed certificate, which incorporates health coaching, is much more comprehensive in addressing population health needs. Importantly, this certificate emphasizes practice-based competencies working directly with people/populations with chronic diseases. This will be the first type of certificate program addressing the growing need for health care practitioners to be competent in objectives listed earlier in this proposal. While there are other programs in the state that offer courses in public health, there is not currently a comprehensive undergraduate certificate in the area.

3. Relevance

Explain why this program is an institutional priority at this time. How will it (a) further the mission of the institution and (b) increase the educational attainment or quality of life of the people of Louisiana.

SLU works closely with local employers in developing the programs and courses of study offered. Employers have had an increased demand for employees with population health skills. Currently, employers are providing on the job training for these job skills as the proposed skill sets are not provided in undergraduate courses.

- (a) **Mission:** SLU's mission is to lead the educational, economic and cultural development of southeast Louisiana. The Population Health Management certificate furthers this mission by meeting the educational needs of the region while promoting economic growth by increasing the population health skill set of the workforce throughout Louisiana.
- (b) **Educational attainment and quality of life:** The proposed program will provide students with a six-month pathway that will increase their level of educational attainment while developing in demand Population Health Management skills. Quality of life will be improved as more community members obtain desirable job skills and subsequent higher wages. The program will: 1) prepare undergraduate students to enter the workforce and secure high paying jobs that are in demand; 2) provide current workers with a pathway to obtaining in demand skills and higher wages; 3) provide workers who want to re-enter the workforce with a pathway to obtaining updated and in demand skills, increasing their economic potential.

Furthermore, the proposed certificate is in alignment with Board of Regent's 2030 Master Plan. Implementation of the program will move towards attaining goals by:

1. **Expanding accessibility** – The proposed certificate provides adult learners, from anywhere in the state, a employer recognized credential; offered as a combination of distance learning (hybrid courses) with self-paced activities to meet course objectives, and the flexibility of completing the unpaid apprenticeship-style course through a local healthcare employer. This includes the potential for adult learners who are currently in the healthcare workforce to earn course credit through on-the-job training with an employer.
2. **Affordability** - The proposed certificate provides students with high demand job skills and knowledge in six months. as either part of a current undergraduate program at SLU or as a non-degree seeking adult learner. To enhance applicability of content, simulated use of technology and population/community health will be supported using Open Educational Resources (OER) such as [Merlot II](#), [OER Commons](#), and [TED ED](#).
3. **Partnerships** - The certificate design is industry-based and employer-driven and was created to help fill the gaps in the current workforce talent pipeline. In designing the certificate requirements, faculty solicited input from local health care employers. SLU faculty will work with area employers to ensure that each student can obtain, and/or create, the aforementioned apprenticeship opportunities. They will also survey employers who provided these experiences to ensure that students are receiving the appropriate level of skills training and knowledge to prepare them to excel in the apprenticeships as well as in the workforce following completion of the certificate program.
4. **Work-based learning** – Each student will be required to complete an apprenticeship as their final course. For students who are currently in the workforce and have a related position to Population Health Management, it will be possible for them to complete the final course through on the job training and the demonstration of required skill competencies.
5. **Closing the achievement gap for the adult learner** – While SLU undergraduate students may elect to complete the certificate during their course of study at SLU, it is expected that two-thirds of those enrolled will be current health care workers (i.e. adult learners). The hybrid coursework and flexibility to use employment towards the required apprenticeship, these students will have the flexibility and accessibility they need to maintain their current career and personal commitment while earning an employer-driven and industry-based certificate.

4. Students

Summarize student interest/demand for the proposed program, and provide evidence (e.g., enr/completers of component courses or closely related minors, concentrations; details of program requests or interest surveys). Estimate expected enrollment (majors) in first three years, and justify expectations.

The Population Health Management certificate was developed following interest from area health care employers. Nationally, as well as locally, employers in the health care sector are moving towards a population health

management model, especially in terms of chronic disease health management. As health care providers prepare for VBP models, the demand for employees with education and skills in population health grows. The American Association of Family Physicians defines VBP as "...a concept by which purchasers of health care (government, employers, and consumers) and payers (public and private) hold the health care delivery system at large (physicians and other providers, hospitals, etc.) accountable for both quality and cost of care." Population Health Management is a key driver to success in the VBP landscape as it identifies at-risk patients and effective care strategies, thereby improving overall patient health outcomes (quality) while reducing the use of expensive, and less effective care.

There are currently no closely related minors or concentrations at SLU.

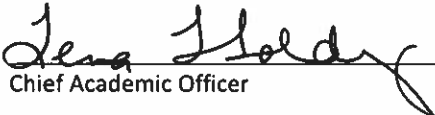
Expected Numbers of Students: Ten in year one; 18 in year two, 30 in year three. Initially, we expect no more than 3-4 students enrolled at Southeastern and another 6-7 students from the existing workforce to participate in the 6-month program. As these individuals graduate and/or return to higher paying employment opportunities, we expect word-of-mouth as well as other employer-driven incentives to drive higher enrollment numbers.

5. Cost

Estimate new/additional costs of the projected program for the first five years, particularly for: faculty, equipment, software, facilities. Describe and explain expected funding sources, including needs for additional appropriations (if any). Commit to provide adequate funding to initiate and sustain the program.

The proposed certificate uses existing courses, space and faculty. Therefore, no additional costs are anticipated. Enrolled adult learners will pay tuition/fees and benefit from available Summer Smart scholarships. Additionally, with the exception of HSCI 464, students from the same or different programs will be enrolled in same courses, providing cost saving strategies. The College of Nursing and Health Sciences is the largest college at Southeastern. In-house laboratory space and equipment are available for simulated experiences. These university-supported experiences, combined with long standing relationships with over 200 health care providers and systems, ensures success and sustainability of the certificate program.

CERTIFICATION:


Chief Academic Officer


Date

Management Board

Date of Approval by Board

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

Item F.7. University of Louisiana at Lafayette's request for approval to terminate the Bachelor of Science in Athletic Training.

EXECUTIVE SUMMARY

The University of Louisiana at Lafayette (UL Lafayette) is requesting approval to terminate the Bachelor of Science (BS) in Athletic Training. Beginning in 2020, the accrediting body (Commission on Accreditation of Athletic Training Education, CAATE) will require that all students obtain a Master of Science in Athletic Training prior to sitting for the Board of Certification Certified Athletic Training. As a result, UL Lafayette is transitioning to the Master's program in 2020; the graduate program was approved by the Board of Regents in December 2019. Since the BS in Athletic Training is no longer relevant, the University would like to terminate the program at this time. It is anticipated that the eight (8) students currently enrolled in the undergraduate program will graduate in May 2020 so there will be no adverse impact on the student body.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves the University of Louisiana at Lafayette's request to terminate the Bachelor of Science in Athletic Training.



University of Louisiana at Lafayette

OFFICE OF THE PRESIDENT

P. O. Drawer 41008
Lafayette, LA 70504-1008
(337) 482-6203
Fax: (337) 482-5914
e-mail: president@louisiana.edu

Université des Acadiens

February 6, 2020

F7

Dr. James B. Henderson
President
University of Louisiana System
1201 North Third Street, Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Henderson:

This is a request to terminate an academic degree program, Bachelor of Science in Athletic Training.

Please place this item on the agenda for consideration at the February 2020 meeting of the Board of Supervisors.

Sincerely,

A handwritten signature in blue ink, appearing to be "E. Joseph Savoie", written over a horizontal line.

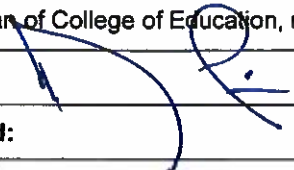
E. Joseph Savoie
President

svc

Attachment



Request to Terminate an Academic Degree Program or Administrative/Research Unit

1. Institution	University of Louisiana at Lafayette
2. Type of Termination (check one)	<input checked="" type="checkbox"/> A. Academic Program (If A, complete all remaining sections) <input type="checkbox"/> B. Administrative Unit (If B, skip sections 3, 4, 5, and 6) <input type="checkbox"/> C. Research Unit – Center or Institute (If C, skip sections 3, 4, 5, and 6)
3. Degree Designation. (BA, MS, PhD, etc.)	Bachelor of Science
4. Title and CIP Code.	Athletic Training / CIP 510913
5. Semester/year at which no new enrollments will be accepted.	Fall 2020
6. Teach-out plan, including semester/year at which reporting of degrees shall cease.	Teach-out plan is attached. Reporting of degrees shall cease Spring semester, May 2020.
7. Reason for request. (Ex: low demand, job opportunities, changing focus, program duplication, loss of funding sources, etc.)	Program is transitioning to a Master's degree. Explanation: It is anticipated that all students in the current program will graduate in May of 2020. Beginning in 2022, the accrediting body, the Commission on Accreditation of Athletic Training Education (CAATE) will require that all students obtain a Master of Science degree in Athletic Training prior to sitting for the Board of Certification Certified Athletic Training. We are transitioning to the Master's program in 2020 and will therefore no longer offer the Bachelor's degree in Athletic Training. <small>* Include statements which address the impact of the termination upon remaining programs/units (if applicable). For example, a request to terminate the Department of Chemistry should also include information about the academic programs in that Department – will they be maintained or terminated as well? If maintained, where will they reside? Will the department maintaining these programs be re-named? How will this further affect the administrative structure at the institution? Append documentation to this form.</small>
8. If collaboration with other institutions is involved, identify partners. Each participating institution must submit a separate request form.	N/A
9. Program/Unit Contact (name, title, email address, telephone number)	Nathan Roberts, Dean of College of Education, nathan.roberts@louisiana.edu, 337.482.1026
Campus Head:	 Date: 2/18/2020
Management Board:	Date:

For Academic Program Termination: note the SACS/COC requirements (Substantive Change) for notification, teach-out plan/agreement, and request for SACS approval following BOR approval. Send BOR/AcAf a copy of the SACS/COC response to finalize the action.

**BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM**

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

February 28, 2020

Item F.8. University of Louisiana at Lafayette's request for approval of a Master of Science in Industrial Chemistry.

EXECUTIVE SUMMARY

The University of Louisiana at Lafayette (UL Lafayette) requests approval to offer a Master of Science (M.S.) in Industrial Chemistry. The Letter of Intent was approved by the Board of Supervisors for the University of Louisiana System in June 2017 with approval granted by the Louisiana Board of Regents in September 2017. In accordance with *Regents' Academic Affairs Policy 2.05*, the graduate-level program proposal was reviewed by an external consultant. Due to various issues a review by Joseph Gardella, SUNY Distinguished Professor of Chemistry, Department of Chemistry, The State University of New York at Buffalo, was not conducted until summer 2019. Dr. Gardella recommended approval of the graduate program, but identified suggestions for improvement that were incorporated into the final proposal.

The proposed program will focus on the professional preparation of skilled workers to satisfy growing demand for graduate-level industrial chemists in the State of Louisiana, largely driven by a rapidly growing market along the I-10 corridor in southern Louisiana (Baton Rouge, Lafayette, and Lake Charles). The proposed M.S. degree will allow graduates to assume mid-level leadership positions in industry with little or no additional training. In contrast to B.S. level graduates who are broadly trained in Chemistry and consequently enter the workforce as entry-level chemists, graduates of the proposed M.S. in Industrial Chemistry will take core classes that will develop expertise in the theory and practice of chemical methods widely used in area industries.

The proposed M.S. in Industrial Chemistry, with thesis and non-thesis options, is organized into the following six components consisting of 30-33 credit hours in total depending on the option selected:

1. 12 credit hours of core coursework;
2. 3 credit hours of required coursework;
3. 6 credit hours of elective coursework for thesis students *or* 9 credit hours for non-thesis students;
4. At most, 6 credit hours of thesis work for thesis candidates *or* 6 credit hours of approved internship for non-thesis students;
5. At most, 1 credit hour of seminar, during which at least one seminar must be given by the student; and
6. At most, 2 hours of directed individual study.

The flexible course offerings allowed as electives will enable students to specialize in Chemistry, Chemical Engineering, Environmental Impacts, or Business Management as related to the field of Industrial Chemistry in order to better match their chosen career paths. The proposed program will be interdisciplinary in nature and will build upon existing University strengths in the Departments of Chemistry and Chemical Engineering with participation from the School of Geosciences and the College of Business Administration. The M.S. in Industrial Chemistry is intended to bridge the gap between the existing B.S. degree programs in Chemistry and in Chemical Engineering (each having a general focus) and the highly specialized training provided by doctoral programs in Chemistry and Chemical Engineering (each focusing around specific research areas).

The choice of UL Lafayette as the home of an M.S. in Industrial Chemistry is in direct and logical correlation with the area's economic and industrial growth. Currently, 55 companies that focus on chemical manufacturing and compounding are located in Lafayette and its vicinity, making this area a hub for industrial chemistry. Additionally, as numerous petrochemical and LNG projects come online in south Louisiana, the need for qualified industrial chemists will increase. As it stands now, Louisiana has a very strong, yet unmet demand for graduate-trained industrial chemists, and specific training for such positions is currently not offered by any public institutions of higher education in Louisiana. Strong letters of support provided by organizations such as the Lafayette Economic Development Authority, Ecoserv, OneAcadiana, and Advanced Applied Research convey that the proposed program, which has incorporated industry relevant training into course design and includes industry internship opportunities, is both needed and warranted.

Potential students will be recruited from those who complete UL Lafayette's B.S. degrees in Chemistry, Chemical Engineering and Petroleum Engineering. In addition, because there is considerable overlap with Geosciences (in the area of mining and natural resource exploration), that program will contribute students to the proposed M.S. as well. The baccalaureate programs noted annually complete, on average, 138 students in total. The University also plans to recruit graduate students for the proposed program regionally and nationally. Projected enrollment for Year One is ten (10) with that number increasing to 25 by Year Five.

The University's ability to rely on existing resources, including a research-active faculty with strong scholarship and grant productivity, will enable an efficient implementation of the proposed graduate program. Cost associated with program implementation includes four teaching assistantships (\$54K annually) along with some refurbishments to existing facilities and acquisition of equipment (\$84K/one-time cost). These minimal but necessary investments will be offset by tuition and fees.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves the University of Louisiana at Lafayette's request for approval to offer a Master of Science in Industrial Chemistry.



University of Louisiana at Lafayette

OFFICE OF THE PRESIDENT

P. O. Drawer 41008
Lafayette, LA 70504-1008
(337) 482-6203
Fax: (337) 482-5914
e-mail: president@louisiana.edu

Université des Acadiens

February 6, 2020

F 8

Dr. James B. Henderson
President
University of Louisiana System
1201 North Third Street, Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Henderson:

This is a request for authority to offer a new degree program, the Master of Science in Industrial Chemistry.

Please place this item on the agenda for consideration at the February 2020 meeting of the Board of Supervisors.

Sincerely,

A handwritten signature in blue ink, appearing to be "E. Joseph Savoie".

E. Joseph Savoie
President

svc

Attachments

Louisiana Board of Regents
AA 2.05: REQUEST FOR AUTHORITY TO OFFER A NEW DEGREE PROGRAM*
 -- Including incremental credentials building up to the Degree --

* Prior to final action by the Board of Regents, no institution may initiate or publicize a new program. *

Date: January 9, 2020

Institution: University of Louisiana at Lafayette	Requested CIP, Designation, Subject/Title: CIP 40.0599, Master of Science in Industrial Chemistry
Contact Person & Contact Info Dr. Thomas Junk, Department Head Department of Chemistry Ray P. Authement College of Sciences University of Louisiana at Lafayette (337) 482-5697 txj9137@louisiana.edu	
Date Letter of Intent was approved by Board of Regents: September 27, 2017	
Date this Proposal was approved by Governing Board:	
Planned Semester/Term & Year to Begin Offering Program: Fall 2021	

1. Program Description

Describe the program concept: (a) purpose and objectives; (b) mode of delivery (on-site/hybrid/on-line). Describe plan for developing and rolling out new courses.

(a) Purpose and Objectives

We propose a new M.S. degree program entitled "Master of Science in Industrial Chemistry." The CIP code for this degree is 40.0599, in the category of "Chemistry, other." This proposed M.S. degree in Industrial Chemistry can be completed in as few as 1.5 years for the non-thesis option; the thesis option will require an additional 1 to 2 semesters. The Master of Science in Industrial Chemistry will focus on the professional preparation of skilled workers to satisfy demand for graduate-level industrial chemists in the State of Louisiana, largely driven by a rapidly growing market along the I-10 corridor in southern Louisiana (including Baton Rouge, Lafayette, and Lake Charles). Notably, the greater Lafayette area is ranked among the fastest growing urban areas with rapidly expanding industries in petrochemical and chemical production. The proposed M.S. degree will allow graduates to assume mid-level leadership positions in industry with little or no additional training. In contrast with B.S. level graduates, who are broadly trained in Chemistry and consequently enter the workforce as entry-level chemists, graduates of the M.S. program in Industrial Chemistry will take core classes that will develop expertise in the theory and practice of chemical methods widely used in area industries. Students enrolled in the M.S. program in Industrial Chemistry will receive practical training by means of two options — a thesis option or a non-thesis option — that provide opportunities for translational research, with the aim of bridging the gap between fundamental and applied research, in focused areas of study directly applicable to industry. Furthermore, the flexible course offerings allowed as curriculum electives will enable students to specialize in Chemistry, Chemical Engineering, or Environmental Impacts as they relate to the field of Industrial Chemistry, to better match their chosen career paths. An M.S. degree in Industrial Chemistry is distinguished from similar qualifications by significant differences in training and the range of anticipated professional activities, which is broader than typically covered by either an M.S. degree in Engineering or a traditional M.S. degree in Chemistry. Many graduates are anticipated to join mid-sized companies that are unable to hire an entire team of highly specialized staff members.

By design, the proposed degree program is interdisciplinary. It will build upon existing strengths in the Departments of Chemistry, Biology, and Chemical Engineering, with participation of the School of Geosciences. The M.S. in Industrial Chemistry is intended to bridge the gap between the existing B.S. degree programs in Chemistry and in Chemical Engineering (each having a general focus), and the highly specialized training provided by doctoral programs in Chemistry and in Chemical Engineering (each focusing on specific research questions and their applicable methodologies). It is our objective to provide a cost-effective, efficient, and flexible alternative to such programs that will ensure that graduates can assume positions of responsibility and leadership in an industrial setting without the need for extensive on-the-job training.

UL Lafayette previously offered a M.S. program in Chemistry, which was terminated in 1994 because of low completion rates. In contrast to the proposed degree program in Industrial Chemistry, the previous M.S. in Chemistry was a general chemistry degree program that lacked a specific focus area and, furthermore, was a direct competitor to other programs in Louisiana in existence at the time, including M.S. programs at the University of Louisiana at Monroe, Northwestern State University, and Grambling State University, all of which have since been terminated. Since that time, enrollment in UL Lafayette's Chemistry B.S. program has more than doubled, as shown below, indicating substantially increased student interest in Chemistry. Data for enrollment of B.S. majors in Chemistry at UL Lafayette show an increase of approximately 3% annually from 2010 to 2017. The mean number of undergraduates enrolled in the B.S. degree program over the last five years is 73.8 ± 8.5 students (mean \pm SD).

Chemistry major enrollment, UL Department of Chemistry

Spring 1994	Spring 2016	Fall 1994	Fall 2016
25	81	32	73

We plan to rely primarily on existing resources at UL Lafayette, including a research-active faculty with strong scholarship and grant productivity to enable an efficient implementation of the proposed M.S. program in Industrial Chemistry. The M.S. in Industrial Chemistry will provide an excellent opportunity to strengthen ties between our institution and local industries, likely to become places of future employment for our graduates. B.S. level chemists already employed at local industries may enroll in our new degree program to advance their careers. Thus, we anticipate a reciprocal exchange of students/graduates to emerge between local industries and the Department of Chemistry at UL Lafayette. As it stands now, Louisiana has a very strong, yet unmet demand for graduate-trained industrial chemists, and specific training for such positions is not currently offered by any Louisiana university. Indeed, no comparable programs exist within the State of Louisiana. The nearest M.S. program in Industrial Chemistry is located at the University of North Texas in Denton.

Resources Needed to Offer Program

UL Lafayette currently has sufficient faculty resources and expertise to offer this program. Faculty members within the Department of Chemistry are active in research. They are publishing approximately 1.5 peer-reviewed publications annually per faculty member, often in prestigious journals. External funding for research is increasing with the 5-year average for new funding at nearly \$300,000 annually (based on Chemistry faculty serving as the lead PI). Funding of single and multi-year research projects currently exceeds \$1M (funding obtained by chemistry faculty serving as PI's or Co-PI's), for research projects supported by NSF and NIH, among other agencies. It is anticipated that the successful implementation of the proposed Master's degree program in Industrial Chemistry will significantly enhance research productivity of Chemistry faculty as their graduate students complete and publish their research, as external funding supports these research endeavors, and as the Master's program in Industrial Chemistry grows to capacity. We anticipate growth in research specifically tied to the needs of industry or performed in collaboration with industrial partners. These research projects will directly benefit our graduate students by providing them with research opportunities in topics of critical importance to industry, often in direct collaboration with industrial partners. Furthermore, graduates of the Master's degree program in Industrial Chemistry may elect to continue their academic training in the new interdisciplinary doctoral degree program in Earth and Energy Sciences. This doctoral degree program includes faculty members from the Department of Chemistry, the Department of Physics, and the School of Geosciences.

GAs (number, funding source, full or tuition-waiver only):

We request funding to support four graduate teaching assistantships. This support, provided by the Graduate School at UL Lafayette, will include an academic-year stipend of \$13,500, with accompanying tuition/fee waiver. This amount is competitive with masters-level graduate assistantships in the College of Sciences at UL Lafayette. Additional research assistantships will be funded by faculty research grants and industrial sponsors, as discussed in further detail below. As the proposed program is implemented and matures, and faculty research expands, we expect additional external funding to be secured. Upon approval of the program, we will also apply for Board of Regents Endowed Superior Graduate Student Scholarships to assist in recruiting excellent graduate degree candidates. Teaching and research assistantships will be critically important for recruiting and retaining highly-qualified graduate students. These assistantships also will help to offset faculty workloads, which will necessarily increase with the inception of a graduate program in Industrial Chemistry. Teaching assistants will help teaching lab sections, grading tests and homework, and help with larger lecture classes (e.g., taking attendance, proctoring tests, grading, office hours). Furthermore, to the extent that Industrial Chemistry overlaps with some of the focus areas of the newly approved doctoral degree program in Earth and Energy Sciences, specifically the acquisition of energy, the processing of byproducts, or the purification of water, we anticipate interest among our prospective students, our graduates, and our corporate partners in each of these degree programs: (1) the M.S. degree program in Industrial Chemistry; and (2) the doctoral degree program in Earth and Energy Sciences.

Labs (cost and space required):

Currently available laboratory space will suffice with renovations as described below under "Cost" for the projected enrollment of 25 graduate students five years after the program is introduced. Montgomery Hall laboratories in rooms 209, 210, 237, 238, and 242-246 are currently dedicated to research and can accommodate combined approximately 25 graduate students. The partitioning of two additional laboratories (rooms 118 and 221) will create additional research space for graduate students anticipated to be enrolled in the Earth and Energy doctoral degree program under the supervision of Chemistry faculty. In addition, we anticipate establishing joint projects with the Department of Chemical Engineering and with local industries, and we envision that some applied graduate training will be conducted at those locations.

Other Physical Facility Needs:

We will require additional office space for graduate research assistants and teaching assistants, so that they can hold office hours in a consistent location where undergraduate students in their courses/labs can be supported. It will also be important that graduate research assistants have suitable office space near the labs where they work so that faculty can appropriately supervise them and provide mentorship. These requirements will necessitate the purchase of desks, a network printer, and the conversion of MY 104 to a graduate student office. We do not require additional room for faculty research space, classrooms, or faculty and staff offices.

Other Resources Needed:

Five computers for use by research assistants and graduate assistants.

Mode of Delivery

The mode of delivery for UL Lafayette's Master of Science in Industrial Chemistry will be face-to-face (i.e., on-site). However, some courses may be offered via hybrid or on-line delivery to support simultaneous pursuit of internship opportunities and facilitate progress toward degree. Some of the elective courses (such as the MBA courses) are already offered online.

Plan for Developing and Rolling out New Courses

New courses at the 500-level will be created, pending final approval of the Master of Science in Industrial Chemistry (see the curriculum section below for proposed courses and their descriptions.) The course rollout plan is such that three lecture courses and two Master's Project and/or Thesis Research courses will be rolled out over three consecutive semesters:

Fall 2021:

CHEM 505 Industrial Organic Chemistry, **New Course**, T. Junk

CHEM 555 Inorganic Chemistry, **New Course**, R. Srivastava, S. Massoud (to be offered in a rotation)

CHEM 402 Chemistry of Materials, Existing Course, K. Knierim, T. Karsili (to be offered in a rotation)

Spring 2022:

CHEM 510 Polymer Sciences, **New Course**, Y. Wang

CHEM 506, Analytical Chemistry, Existing Course, F. Louka

CHEM 501, Physical Chemistry, Existing Course, K. Knierim, T. Karsili (to be offered in a rotation)

CHEM 504, Biochemistry, **New Course**, E. Taylor or W. Xu. (to be offered in the spring semester of alternate years)

Summer 2022:

CHEM 598 Internship, **New Course**, to be offered by faculty mentor of the student

CHEM 599 Thesis, **New Course**, to be offered by the faculty mentor of the student

Fall 2022:

CHEM 418G, Special Topics in Biochemistry, **New Course**, W. Xu

The project (CHEM 598) and thesis (CHEM 599) courses require little advanced preparation and, accordingly, will be assumed on a voluntary basis by our regular faculty simply as one of the means by which they mentor their graduate students. Course development and lecture classes will be shared equally among the faculty of the Department of Chemistry. No individual faculty member will be required to develop more than a single course. After the courses are developed and offered, several instructors will be rotated through the courses offered as indicated above. Faculty members who teach classes in the graduate curriculum will have their undergraduate teaching load reduced accordingly, as in existing graduate degree programs in the College of Sciences. In the short term, adjunct faculty will be hired to teach the lower level courses as needed. Graduate student teaching assistants will help to offset teaching loads of Chemistry faculty by teaching lower-level chemistry laboratory classes and assisting with upper level chemistry lab classes.

Map out the proposed curriculum, in sequence, identifying any incremental credentials and/or concentrations within the degree. Indicate which courses will be new, including those that would be offered in the new program as electives. Describe any special requirements (e.g., internships, comprehensive exam, thesis, etc.).

Basic Structure of the Curriculum and Components/Concentrations:

Total Number of SCHs Required and Estimated Time Required for Student Completion:

We propose a thesis option and a non-thesis option, as shown below.

Thesis option	Non-thesis option
Core courses, 12 cr. hrs	Core courses, 12 cr. hrs
Required, 3 cr. hrs	Required, 3 cr. hrs
Electives, 6 cr. hrs	Electives, 9 cr. hrs
Directed individual study, 2 cr. hrs	Directed individual study, 2 cr. hrs
Thesis, 6 cr. hrs*	Internship, 6 cr. hrs
Seminar, 1 cr. hr.	Seminar, 1 cr. hr.
Total: 30 cr. hrs	33 cr. hrs

*Students will be expected to give an oral defense of their work.

The timetable outlined below results in a graduation time of 1.5 years after entry (based on a Fall semester entry into the program and full-time enrollment). Students engaged in thesis research may require an additional semester or two to complete their research project and write their thesis.

FALL 1:	CORE - CHEM 402(G): Chemistry of Materials, 3 cr. hrs.	
	CORE - CHEM 505: Industrial Organic Chemistry, 3 cr. hrs.	New Course
	CORE - CHEM 555: Inorganic Chemistry, 3 cr. hrs.	New Course
SPRING:	CORE - CHEM 506: Analytical Chemistry, 3 cr. hrs.	
	REQUIRED - CHEM 501: Physical Chemistry, 3 cr. hrs. <u>or</u> CHEM 510: Polymer Sciences, 3 cr. hrs.	New Course
	CHEM 590: Graduate Seminar, 1 cr. hr.	New Course
	CHEM 597: Directed Individual Study, 2 cr. hrs.	
SUMMER:	Non-thesis option: CHEM 598: Internship (includes report), 6 cr. hrs.*	New Course
	Thesis option: CHEM 599: Thesis, 3 cr. hrs.	New Course
FALL 2:	Electives, 6 cr. hrs.	
	Thesis option: CHEM 599: Thesis, 3 cr. hrs.	New Course
	Non-thesis option: Elective, 3 cr. hrs.	

As the curricula proposed above illustrate, flexibility is built into the degree program to accommodate specific student interests. Several new courses will be developed. Their contents are discussed below and were reviewed by the departmental curriculum committee to ensure that they are suitable for the proposed program. Graduate students will identify their major professor by the end of the second semester in the program. In consultation with their major advisor, the thesis advisory committee will be formed to guide the students through their thesis research. The preparation of theses will be consistent with those produced in graduate programs in other departments of the College of Sciences, as well as in the graduate programs of the University as a whole. Students will defend their thesis research orally in a presentation open to the public and evaluated by the thesis advisory committee. Students enrolled in the non-thesis program will select a graduate advisor by the end of the second semester of the program. The graduate advisor will coordinate an available internship that best suits their career goals. Internships will be carefully monitored and the credentials of the companies/agencies offering internships reviewed to ensure that the proposed assignments are in line with the needs of the program. Prior to initiation of an internship, students will be required to develop a formal plan with the company/agency and their graduate advisor detailing requirements or results that will be expected. At the completion of his/her internship research, the student will complete a final written report and formally present his/her work orally. The student's graduate advisor and the graduate committee members of the Chemistry program, in conjunction with faculty members in other departments and industrial partners, as appropriate, will determine the details regarding the oral presentation and the final written report. We have relied on industry partners for our undergraduate internship program and, therefore, have established relationships with area businesses to which we provide chemists. The industry partners identified to date for participation in the M.S. program in Industrial Chemistry are listed below.

AllChem
Clariant
Nalco
Advanced Applied Research
EcoServe
MicroChem
Coastal Chemical Co.

Courses

The content of existing courses will be modified as needed to accommodate industrial applications. The Master of Science in Industrial Chemistry program is organized as six components:

1. 12 credit hours of core coursework;
2. 3 credit hours of required coursework;
3. 6 credit hours of elective coursework for thesis students, or 9 credit hours of elective coursework for non-thesis students;
4. At most, 6 credit hours of thesis work for thesis candidates, or 6 credit hours of approved internship for non-thesis students;
5. At most, 1 credit hour of seminar, during which at least one seminar must be presented orally by the student;
6. At most, 2 hours of directed individual study.

A maximum of 12 hours of 400(G) -level courses will be permitted.

CORE

CHEM 402 (G): Chemistry of Materials
CHEM 505: Industrial Organic Chemistry (new course)
CHEM 506: Analytical Chemistry (new course)
CHEM 555: Inorganic Chemistry (new course)

REQUIRED

CHEM 501: Physical Chemistry
or
CHEM 510: Polymer Sciences (new course)

ELECTIVES

CHEM 418 (G): Special Topics in Biochemistry
CHEM 504: Biochemistry
CHEM 501: Physical Chemistry, or CHEM 510: Polymer Sciences (Students are required to take one of these two courses; the other course is available as an elective).
BIOL 453 (G): Molecular and Cellular Engineering
BIOL 454 (G): Molecular and Cellular Engineering Laboratory
BIOL 526: Advanced Microbial Physiology and Genetics
CHEE 413 (G): Process Control in Chemical Engineering
CHEE 417 (G): Polymer Engineering
CHEE 420 (G): Chemical Reaction Engineering
CHEE 427 (G): Advanced Material Science and Engineering
CIVE 460 (G): Waste Water Treatment
ENVS 486 (G): Water Quality
ENVS 580: Fate of Pollutants in Soils and Natural Waters
ENVS 585: Renewable Energy Resources
MBA 502: Survey of Mgmt. & Mgmt. Information Systems
MBA 503: Survey of Marketing & the Legal Environment of Business

A limited number of other elective courses may be added to this list as they are developed in the Department of Chemistry, or in the Departments of Biology, Chemical Engineering, Civil Engineering, or Environmental Science.

COURSE DESCRIPTIONS**CORE COURSES**

CHEM 402 (G): Chemistry of Materials (3 credit hours). This course focuses on the chemistry of solid state materials.

The following topics will be covered:

1. Introduction: definition of macromolecular engineering, correlation of synthesis, architecture and functionality, examples of advanced functional materials.
2. Contemporary polymerization techniques: living anionic polymerization, living cationic and ring opening polymerizations, reversible deactivation radical polymerization, ring opening metathesis polymerization, living coordination polymerization, step growth polycondensation, supramolecular polymerization, bottom up synthesis of graphene.
3. Precise molecular architecture design: block copolymers, bottlebrush polymers, surface initiated polymers, dendrimers and hyper branched polymers, functionalities.
4. Advanced functional materials: self-healing materials – reversible crosslinked network, shape memory materials, nanostructured carbons, polymers in electronics, medical applications.

CHEM 505: Industrial Organic Chemistry (3 credit hours). **New Course.** It highlights important industrial processes and organic chemicals of industrial significance.

The following topics will be covered:

1. Energy and raw materials supply: natural gas, synthesis gas, petroleum feedstocks, key inorganic feedstocks.
2. Key intermediates in industrial syntheses: production volumes, business considerations, manufacturing methods.
3. Olefins and acetylene: manufacture of alkenes, the chemistry of acetylene, polyadducts.
4. Carbon monoxide: hydroformylation, carbonic acid derivatives, addition reactions of industrial importance.
5. Alcohols: manufacturing methods, applications.
6. Vinyl compounds: manufacturing methods, industrial significance.
7. Monomer sourcing: polyamides, polyurethanes, polyesters, thermosets.
8. Aromatics: sources of aromatics, amines, phenols, alkylation products, oxidation and dearomatization products.
9. Safety, low impact manufacturing: alternatives to hazardous processes, renewable precursors.

CHEM 506: Analytical Chemistry (3 credit hours). New Course. It surveys selected principles and techniques of modern analytical chemistry with focus on spectroscopy, separations sciences, and electroanalytical chemistry. The following topics will be covered:

1. Electrochemistry: introduction to electrochemistry, Nernst equation, potentiometry, different types of electrodes, electroanalytical techniques, biosensors, conditions for electrochemical applications, using electrochemical techniques to find constants.
2. Separation methods: introduction to chromatography, Plumber's view of chromatography, Van Deemter equation, gas chromatography, high-performance liquid chromatography, derivatization, capillary electrophoresis.
3. Spectroscopy: introduction to molecular spectroscopy, UV-Vis spectrophotometry, fluorimetry, infra-red spectroscopy, Raman Spectroscopy, atomic absorption spectroscopy, inductively coupled plasma spectrophotometry, molecular mass spectrometry coupled instruments.
4. Miscellaneous topics: trace Analysis, X-ray spectrometry, electrochemical techniques.

CHEM 555: Inorganic Chemistry (3 credit hours). New Course. It familiarizes students with current concepts of structural inorganic chemistry. The following topics will be covered:

1. Metalloproteins and metalloenzymes of oxygen carrier molecules in non-heme and heme-containing-proteins.
2. Coordination compounds as therapeutic agents with emphasize on cis-platin and its new generation of the drug in cancer treatment.
3. Cell toxicity and superoxide dismutase.
4. Phosphate hydrolysis and ATP hydrolysis.
5. Metal toxicity and detoxification mechanisms.
6. Study of the structure, bonding, and chemical properties of organometallic compounds of the transition elements.
7. Applications to organic synthesis and homogeneous catalysis.
8. The role of metals in homogeneous and heterogeneous catalysis, with an emphasis on mechanisms of catalytic reactions.
9. Catalytic applications to industrial processes, organic synthesis, and asymmetric synthesis.
10. Biomass energy: Transition metal-catalyzed transformation of alcohols, polyols. Deoxygenation, dehydration, and deoxydehydration (DODH) and reductive coupling.

REQUIRED COURSES:

CHEM 501: Physical Chemistry (3 credit hours). Surface chemistry, kinetics, thermodynamics. The following topics will be covered:

1. Experimental reaction rates: determination of reaction rate and rate law, factors influencing reaction rates.
2. Reaction mechanisms and rate laws: simple kinetic forms, complex reaction mechanisms, reversible reactions, parallel reactions, surface catalysis, photochemical reactions.
3. Deduction of reaction mechanisms: mechanistic interpretation of rate laws, additional experimental evidence for a reaction mechanism.
4. Reaction energetics: activation parameters, thermodynamics (free energy and enthalpy) of activation, temperature dependence of composite rate constants.
5. Theories of reaction rates, activated complex theory, partition functions for reactants, activated complex, and products, trajectories and potential energy surfaces, reactions occurring in solution, solvent effects, cage effect, solvent effects on polar and ionic reactions, salt effect.

CHEM 510: Polymer Sciences (3 credit hours). New Course. This course introduces students to man-made and modified natural organic and inorganic polymers and biopolymers, with the main objective of covering topics outside the field of traditional plastics manufacturing. The following topics will be covered:

1. Introduction: definition of macromolecular engineering, correlation of synthesis, architecture and functionality, examples of advanced functional materials.
2. Contemporary polymerization techniques: living anionic polymerization, living cationic and ring opening polymerizations, reversible deactivation radical polymerization, ring opening metathesis polymerization, living coordination polymerization, step growth polycondensation, supramolecular polymerization, bottom up synthesis of graphene.
3. Precise molecular architecture design: block copolymers, bottlebrush polymers, surface initiated polymers, dendrimers and hyper branched polymers, functionalities.
4. Advanced functional materials: self-healing materials, reversible crosslinked networks, shape memory materials, nanostructured carbons, polymers in electronics, medical applications.

CHEM 590: Graduate Seminar (1 credit hour). New Course. Variable topic seminar designed to provide experience in proper presentation of scientific material and in scientific criticism. Students are expected to attend seminars and are required to present one seminar. In addition, the seminar will include three hours of professional ethics training.

CHEM 597: Directed Individual Study (2 credit hours). Students will conduct a chemistry research project under supervision of a faculty member. A final report will be required.

CHEM 598: Internship (6 credit hours). New Course. Students work as interns for a sponsoring company. Prior approvals of advisor and sponsoring company are required to assure rigor of internship. Students will have to present their work orally and provide a written report.

CHEM 599: Thesis Research and Thesis (3-9 credit hours). **New Course.** Students perform thesis research and/or prepare the thesis.

ELECTIVE COURSES

CHEM 418 (G): Special Topics in Biochemistry (3 credit hours). Physical biochemistry, metabolism, nucleic acid technology. Focus areas will include the separation, purification, identification, and handling of biomolecules incl. associated methodology (ultracentrifugation, electrophoresis, mass spectrometry, conformational analysis), stability considerations, sourcing of biochemicals, metabolic fates of compounds, use of enzymes in chemical processes, genetically altered organisms in chemical manufacturing, biosafety aspects.

CHEM 504: Biochemistry (3 credit hours). The study of the chemistry of living cells. The theoretical and practical understanding of modern biotechnology including the use of genetic engineering to produce products of commercial interest such as engineered plants. This content of this course has been adapted in order to prepare students for a career in biotechnology and allied industries.

BIOL 453 (G): Molecular and Cellular Engineering (3 credit hours). Fundamental concepts of genetic engineering as they are being applied to the development of superior strains of microbes, plants and animals for use in industry and biomedicine.

BIOL 454 (G): Molecular and Cellular Engineering Laboratory (2 credit hours).

BIOL 526: Advanced Microbial Physiology and Genetics (3 credit hours). Microbial nutrition, growth, metabolic reactions, and control mechanisms.

CHEE 413 (G): Process Control in Chemical Engineering (3 credit hours) This is a lab-lecture combination designed to train students in the design and application of process control systems. Course topics will include process instrumentation, process dynamic models, Laplace transform feedback and feed forward control systems, frequency response methods, and computer simulation of process control systems.

CHEE 417 (G): Polymer Engineering (3 credit hours). This course focuses on the processing of polymers. It discusses the relationship between the structure of polymers and their properties, introduces methods of polymer processing, and provides laboratory demonstrations of polymer processing.

CHEE 420 (G): Chemical Reaction Engineering (3 credit hours). Students will learn to solve reactor design problems. Topics covered will include mole balances, conversion and reactor sizing, rate laws and stoichiometry, isothermal reactor design, collection and analysis of rate data, multiple reactions, and non-isothermal systems.

CHEE 427 (G): Advanced Material Science and Engineering (3 credit hours). This course will cover the relationship of polymer structure, polymer properties, and polymer processing. Major emphasis is placed on the physical basis of moduli, phase transformations, alloy design, advanced metallics, advanced polymers and composites.

CIVE 460 (G): Waste Water Treatment (3 credit hours). Objectives include analysis and resolution of engineering problems involving waste water treatment processes, design and evaluation of sedimentation processes, analysis and design of attached growth biological treatment systems, design of sludge treatment facilities, preliminary design of a centralized wastewater treatment systems, and delivery of designs in verbal and written formats.

ENVS 486 (G): Water Quality (3 credit hours). Topics of this course will include the properties of water, water quality regulations and policy development, water quality standards, designated uses and numeric criteria for quality assurance, planning water quality sampling programs, the development of field measurements, laboratory analyses, TMDL, and discharge measurement.

ENVS 580: Fate of Pollutants in Soils and Natural Waters (3 credit hours). Thermodynamics and surface reactions affecting the presence, distribution, and fate of pollutants.

ENVS 585: Renewable Energy Resources (3 credit hours). Scientific and economic understanding of renewable energy resources including biofuels, solar wind, hydrogen among others.

MBA 502: Survey of Mgmt. & Mgmt. Information Systems (3 credit hours, on-line). Concepts and principles of management, interactions between the environment, technology, human resources, and organizations in order to achieve high performance, information systems.

MBA 503: Survey of Marketing & the Legal Environment of Business (3 credit hours, on-line). Marketing strategy, legal and regulatory issues, antitrust, labor law, employment law, environmental law, securities law, constitutional law, administrative law, regulatory environment, the enactment of statutes.

2. Need

Outline how this program is deemed essential for the well-being of the state, region, or academy (e.g., how is it relevant, how does it contribute to economic development or relate to current/evolving needs).

Industrial chemistry job opportunities are well-paid, high-demand positions. Notably, the Louisiana Workforce Commission anticipates a 42% increase in employment in chemical manufacturing for Region 5 (Lake Charles and vicinity) by 2022. Nationwide, the chemical industry employs approximately 800,000 workers who earn an average annual salary of \$108,000 (Fig. 1). This income is 47 percent higher than the average U.S. manufacturing wage. Louisiana is the second largest chemistry producing state in the nation, providing 23,000 direct jobs and generating \$68.3 billion in revenue, making it the second highest manufacturing industry in our state. (Source: American Chemistry Council, 2015). Figure 1 shows that industry-employed M.S.-prepared chemists enjoy a median earnings advantage of \$17,000 annually as compared to B.S.-prepared chemists.

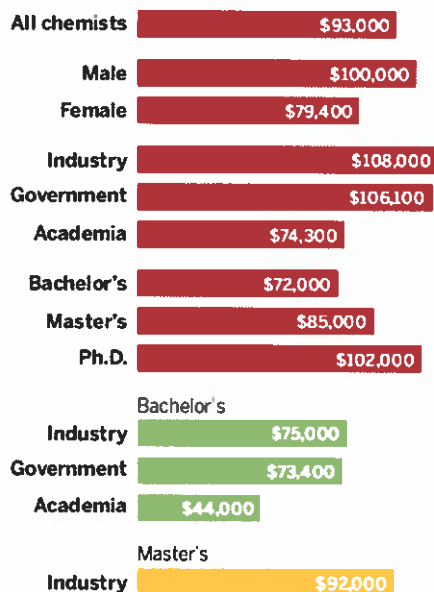


Fig. 1. Median annual base salaries for chemists employed full time (2014). (Source: ACS salary and employment survey)

Currently, several major expansion projects of chemical production facilities are planned, underway, or recently completed in Louisiana: BASF built a \$20 million Vidalia plant in 2013; Sasol is constructing a \$11.1 billion ethane cracker in Lake Charles, South Louisiana; Methanol LP announced the construction of a \$1.3 billion in a new methanol production facility in Convent. Shintech Inc. announced that the company would invest \$1.4 billion in its Iberville Parish facilities to establish new ethylene production capacity, to be completed by 2018. Castleton Commodities International's new \$1.2 billion methanol manufacturing plant will be located south of New Orleans. Lubrication Technologies has initiated a \$16 million capital investment in Louisiana. Finally, Cool Planet Energy Systems will invest \$168 million for biofuel production at three separate Louisiana sites.

Unemployment of chemists, at 2.9%, is slightly lower than the national average unemployment rate of currently 3.9%. Moreover, it is expected that, over the next five years, 2,300 additional jobs will be created nationwide, and the chemistry field is expected to grow at a steady rate even in economically difficult times. Relatively rapid salary increases also reflect continued strong labor demands in chemistry: between 2010 and 2014, median salaries for M.S. chemists increased by \$12,000, or 11.5%. The average compensation for industrial chemists is \$95,000, 48% higher than the average manufacturing wage (Source: American Chemistry Council).

The choice of UL Lafayette as the home of an M.S. program in Industrial Chemistry is logical, considering the area's economic and industrial growth. Currently, fifty-five companies that focus on chemical manufacturing and compounding are located in Lafayette and its vicinity (Source: Lafayette Economic Development Authority), making this area a hub for industrial chemistry. In 2015, Lafayette ranked among the best performing cities for the sixth time in seven years (Source: Lafayette Economic Development Authority). Lafayette ranks in the top 25 metro areas in the Best Performing Cities Index, and Lafayette was ranked as the fifth best mid-sized city and the seventh best Southern city in Area Development's 2014 Leading Locations list for economic and job growth. Lafayette also ranks as the eighth best manufacturing city in the U.S. in an analysis completed by *New Geography*. Job growth in Lafayette between 2008 and 2013 was 5.9% (Source: Lafayette Economic Development Authority; Forbes, April 2014). Although we will cater to a nation-wide market, local economic growth will facilitate recruitment and student placement for internships. The Louisiana Workforce Commission currently ranks chemistry as a five star job, meaning it is both a high wage and

high demand profession. Chemists currently earn average of \$70,590 in our state. Given that most chemists are hired with B.S. degrees from traditional programs that do not offer the same depth of knowledge about specific industrial applications provided by the proposed program, it is expected that the average compensation of our graduates will be substantially higher.

Table 1. Chemistry jobs by employer as percentage of total (Source: 2014 ACS Job Census)

	2010	2012	2013	2014
Industry	52.7	56.2	54.3	52.3
Government	7.3	7.4	7.6	7.5
Academia	32.1	34.9	36.5	38.9
Self-employed	7.9	1.6	1.6	1.3

Table 1 offers a breakdown of chemistry employment according to employers. Industrial Chemistry constitutes more than 50% of the overall job market for chemists. Important facts about chemistry (Table 2) include the fact that starting salaries for M.S.-prepared chemists are higher by \$12,000 on average than those of entry-level B.S.-trained chemists. As shown in Fig. 1, this gap further widens to \$17,000 as their careers progress. Thus, it makes sound economic sense for undergraduate chemistry majors to pursue graduate training in industrial chemistry.

Table 2. Important facts about employment in chemistry

2014 Starting salaries, B.S. in chemistry	40,000 ⁽¹⁾
2014 Starting salaries, M.S. in chemistry	52,000 ⁽²⁾
2014 Unemployment rate for chemists	2.9% ⁽²⁾
2014 Average natl. unemployment rate	6.2% ⁽²⁾
2014 Median salaries, M.S. in chemistry	92,000 ⁽³⁾
2010 Median salaries, M.S. in chemistry	80,000 ⁽³⁾
Expected increase in chemistry jobs over the next 5 years	4% or 2,300 new jobs ⁽⁴⁾

⁽¹⁾ U.S. Bureau of Labor Statistics

⁽²⁾ Chem. Eng. News, Vol. 93, pp. 27-29, 2014

⁽³⁾ Chem. Eng. News, Vol. 92, pp. 68-71, 2015

⁽⁴⁾ Worcester Polytechnic Institute

Relevance of the proposed program to the Board of Regents (BOR) Master Plan for Public Postsecondary Education in Louisiana: 2011 (Revised April, 2012)

The proposed M.S. program in Industrial Chemistry specifically addresses the following goals and objectives in the BOR 2011 Master Plan:

Goal 1, Objective 1.7: "Develop a Skilled Workforce to Support an Expanding Economy."

The proposed Master's program in Industrial Chemistry will train a new generation of skilled workers to support chemical manufacturing and processing, both of which are critical in the economic context of the State of Louisiana. We specifically address this need in our curriculum, and describe in this proposal how these students will be trained in the classroom and laboratory. The program is designed to accommodate students in several related fields by offering flexibility in elective courses. The degree program is designed to efficiently provide educational opportunities to full-time graduate students while, at the same time, accommodating part-time students and those who are currently employed and are interested in advancing their professional careers. Full-time students will be able to complete the proposed degree program in as few as 1.5 years, should they elect to pursue the non-thesis option. Given the significant pay differential between B.S. trained and M.S. trained chemists, the proposed M.S. degree will be a worthwhile economic investment for our students.

Goal 2, Objective 2.1: "Maintain and Build Strength in Foundational Science and Technology Disciplines Identified in FIRST Louisiana."

"Materials & Chemicals" are listed as a High Growth Target Industry by FIRST Louisiana. This is precisely the industry that our Master's program will support. Graduates of the proposed M.S. program in Industrial Chemistry will be prepared to work and become leaders in companies that specialize in chemical production and processing.

"Recruit, cultivate, and retain research talent in the foundational sciences."

The addition of a Master's program in Industrial Chemistry will allow the Department of Chemistry to expand research in Applied Chemistry, an area of research that will attract additional research-active faculty to UL Lafayette and provide added incentive to retain them as members of the University's scholarly community. Some of the graduates of the Master's degree program in Industrial Chemistry will likely elect to continue their studies in the newly-approved, interdisciplinary doctoral degree program in Earth and Energy Sciences. Together, these advanced degree programs will provide a strong incentive to attracting and retaining

research active faculty.

“Develop and maintain cutting-edge infrastructure and facilities for fundamental science and technology research.”

The proposed Master’s program in Industrial Chemistry will provide new opportunities to advance our infrastructure. We will leverage the Master’s program to secure new technologies through grants or through partnerships with local business partners. As an added benefit, we will rely on Master’s students in Industrial Chemistry and doctoral students in Earth and Energy Sciences to help operate and maintain our research instrumentation. Thus, the Department of Chemistry, among other departments within the College of Sciences and the College of Engineering, will directly benefit from the proposed M.S. degree program in Industrial Chemistry. Specifically, faculty and students in the Colleges of Sciences and Engineering will have access to new specialized instrumentation to advance their research and the education and training of their students.

Goal 2, Objective 2.2: “Promote Multidisciplinary and Multi-Institutional Collaborative Research Efforts.”

The curriculum of the proposed Master’s program in Industrial Chemistry is multidisciplinary in nature. The degree program brings together faculty having expertise in Chemistry, Biology, Engineering, and Environmental Science to offer courses and graduate training in Chemistry, Biology, Environmental Science, Chemical Engineering, and Civil Engineering. The shared mentoring of graduate students by faculty members drawn from several different departments and colleges of the university will foster new, interdisciplinary research efforts.

“Address multi-disciplinary and multi-institutional collaborations in campus research plans.”

The multidisciplinary faculty members who will contribute to the M.S. degree in Industrial Chemistry reflect the University of Louisiana at Lafayette’s *Strategic Plan* for advancing multidisciplinary scholarship and research. This emphasis on multidisciplinary and interdisciplinary research is strongly encouraged in the university community. For example, the College of Sciences hosts a monthly seminar dedicated to showcasing interdisciplinary research. These Sciences Interdisciplinary Monthly Meetings highlight research programs that incorporate interdisciplinary approaches for the purpose of advancing scientific knowledge and solving problems. Recently, we launched the Herman Hughes Distinguished Lecture Series that promotes interdisciplinary research. This lecture series, co-hosted by the College of Sciences and the College of Engineering, brings in renowned scientists who employ interdisciplinary approaches to advance their research.

Goal 2, Objective 2.3: “Sustain and Advance Research Commercialization and Translational Activities that Promote Economic Development in Louisiana.”

We are embracing translational research as the primary focus of this degree program in Industrial Chemistry, with the aim of bridging the gap between fundamental, basic research, and applied research. The program will bring together Professors of Chemistry, their graduate students, and professional chemists working in area industries that specialize in economically relevant applications of chemistry. We anticipate that the majority of our graduate students’ thesis projects will be dedicated to solving problems pertinent to industrial applications of chemistry. In summary, the proposed M.S. in Industrial Chemistry is specifically designed to enhance commercialization of research discoveries.

“Promote Multidisciplinary and Multi-Institutional Collaborative Research Efforts.”

The proposed M.S. program in Industrial Chemistry will promote multidisciplinary research by bringing together faculty from different departments in the College of Sciences and the College of Engineering to advise thesis research projects that are multidisciplinary. From these advisory committees, it is anticipated that some of the projects will develop into larger, long-term research endeavors that will span several M.S. thesis projects and ultimately form the basis for multidisciplinary research proposals.

“Foster networking and strategic collaborations between higher education, government, and Louisiana’s existing and prospective high-growth industry sectors.”

Louisiana’s high-growth industry sectors include “Materials & Chemicals.” Our planned course curriculum directly supports these two sectors by enabling graduates of the M.S. in Industrial Chemistry to join the workforce in industries that produce and process chemicals. Because many of our students will work as interns for local industries, and/or will engage in research projects or theses that focus on problems experienced by industry partners, strategic collaborations will form between industry and higher education. Hence, our Master’s degree program framework and educational approach of embracing translational research will readily foster collaborations between higher education and industrial and government partners.

“Build capacity in areas of competitive advantage and target niches which align with campus and State research priorities.”

As described above, our course offerings in Industrial Chemistry and the student research projects and theses are intended to produce translational research vital to the well-being of the State of Louisiana. The Department of Chemistry, the College of Sciences, and the University will benefit from forming close associations with area chemical industries to which we will provide a skilled workforce. Additionally, entry-level chemists working for these companies can advance their careers by seeking an advanced degree in Industrial Chemistry.

Describe how the program will further the mission of the institution.

The University of Louisiana at Lafayette is the largest member of the University of Louisiana System. Our proposed Master's degree program in Industrial Chemistry aligns well with UL Lafayette's strategic plan, which specifically identifies increasing "the interface between the community and university" and enhancing "the vibrancy of the State of Louisiana" as key strategic objectives. Therefore, the production of highly skilled graduates who will join the workforce, as well as the opportunity to strengthen the collaboration between academia and industry are objectives that align with the mission of our institution. The proposed M.S. program in Industrial Chemistry will contribute to the University's ongoing development of scholars who advance knowledge and improve the material conditions of society. Two of the University's stated areas of excellence, environment and energy, complement the proposed program and overlap with the proposed target area of Industrial Chemistry.

Our proposed Master's program in Industrial Chemistry is an institutional priority at this time because of the sustained and increasing demand for industrial chemists, which is not adequately met by any educational program available within our state. The proposed M.S. degree program in Industrial Chemistry will contribute to the workforce by training skilled graduates with high earnings potential, while at the same time seeding innovation as a result of translational research and superior training of graduate students. This result, in turn, will directly support the State of Louisiana's economic prosperity through development of a skilled, educated citizenry, which, according to the Board of Regents Master Plan, has established a goal of increasing the educational attainment of its adult citizens to the SREB average of 42% by 2025.

Identify similar programs in the state and explain why the proposed one is needed: present an argument for a new or additional program of this type and how it will be distinct from existing offerings.

The Louisiana Board of Regents' program inventory indicates that no Master's level degree programs in Industrial Chemistry currently exist in the State of Louisiana.

The following in-state programs offer graduate degrees in Chemistry, which are relevant in the context of this proposal:

<i>Louisiana Tech Univ., Ruston</i>	<i>M.S. in Chemistry with Specialization in Molecular Sciences and Nanotechnology</i>
<i>McNeese State Univ., Lake Charles</i>	<i>M.S. in Chemistry with Specialization in Environmental and Chemical Sciences</i>
<i>Louisiana State University</i>	<i>M.S. in Chemistry, M.S. in Environmental Science, M.S. in Industrial Engineering</i>
<i>Univ. of New Orleans, New Orleans</i>	<i>M.S. in Chemistry</i>

In addition, Louisiana Tech University offers a Master of Science degree in Molecular Sciences and Nanotechnology. The stated mission of this program is "to train graduate students in experimental, theoretical, and computational aspects of research in molecular biology, chemistry, and physics, particularly where these disciplines intersect." Core courses include the following (course numbering system equivalent to UL Lafayette course numbering system):

MSNT 502	Research Methods (3 hours)
MSNT 504	Seminar (1 hour)
MSNT 505	Nanotechnology Principles (3 hours) or:
MSNT 521	Principles of Cell and Molecular Biology (3 hours)
MSNT 551	Research and Thesis in Molecular Sciences and Nanotechnology (6 hours)

Our proposed program offers core training in industrial organic chemistry, the chemistry of solid-state materials and polymers, and advanced analytical and physical chemistry. Consequently, the proposed M.S. program in Industrial Chemistry will not result in a significant duplication of the M.S. program in Molecular Sciences and Nanotechnology offered at Louisiana Tech University.

McNeese State University offers a hybrid Master's degree in Environmental and Chemical Sciences that has concentrations in Chemistry, Environmental Sciences, and Agriculture. Students may choose a thesis or non-thesis option. Of those, the concentration in Chemistry is most closely related to the proposed degree program. This program is structured as follows (course numbering system equivalent to UL Lafayette course numbering system):

Thesis option:

CHEM 690 - Research in Chemical Sciences (Lab. 9, Cr. 3)

CHEM 695 - Seminar (Cr. 1)

Advisor-approved CHEM courses - 12 hours

Advisor-approved AGRI (Agriculture), AGRO (Agronomy), ANSC (Animal Science), ENSC (Environmental Science), NRCM (Natural Resources Conservation Management), or WMGT (Wildlife Management) courses - 9 hours

CHEM 699 - Thesis (Cr. 3-6) (must accrue 6 credit hours)

Non-thesis option:

CHEM 690 - Research in Chemical Sciences (Lab. 9, Cr. 3)

CHEM 695 - Seminar (Cr. 1)

Advisor-approved CHEM courses - 15 hours

Advisor-approved AGRI, AGRO, ANSC, ENSC, NRCM, or WMGT courses - 12 hours

Electives (any discipline; 500/600 level) - 6 hours

The following Chemistry courses are offered:

CHEM 512 - Advanced Inorganic Chemistry (Lec. 3, Cr. 3)
CHEM 513 - Inorganic Preparations (Lec. 1, Lab. 6, Cr. 3)
CHEM 515 - Green Chemistry and Sustainability (Lec. 3, Cr. 3)
CHEM 521 - Biochemistry I (Lec. 3, Cr. 3)
CHEM 521L - Biochemistry I Laboratory (Lab. 3, Cr. 1)
CHEM 522 - Biochemistry II (Lec. 3, Cr. 3)
CHEM 523 - Quantitative Instrumental Analysis (Lec. 3, Cr. 3)
CHEM 523L - Quantitative Instrumental Analysis (Lab. 3, Cr. 1)
CHEM 524 - Organic Mechanisms (Lec. 3, Cr. 3)
CHEM 526 - Special Topics in Computational Chemistry (Lec. 3, Cr. 3)
CHEM 528 - Lasers in Chemical Analysis (Lec. 3, Cr. 3)
CHEM 529 - Bioinorganic Chemistry (Lec. 3, Cr. 3)
CHEM 550 - Industrial Chemistry (Lec. 3, Cr. 3)
CHEM 565 - Forensic Chemistry (Lec. 3, Lab. 3, Cr. 4)
CHEM 571 - Selected Topics in Science for Elementary Teachers I (Lec. 3, Cr. 3)
CHEM 572 - Selected Topics in Science for Elementary Teachers II (Lec. 3, Cr. 3)
CHEM 580 - Polymer Chemistry (Lec. 3, Cr. 3)
CHEM 601 - Advanced Organic Chemistry I (Lec. 3, Cr. 3)
CHEM 610 - Selected Topics in Biochemistry (Lec. 3, Cr. 3)
CHEM 613 - Selected Topics in Physical Chemistry (Lec. 3, Cr. 3)
CHEM 620 - Selected Topics in Organic Chemistry (Lec. 3, Cr. 3)
CHEM 631 - Advanced Analytical Chemistry (Lec. 3, Cr. 3)
CHEM 635 - Advanced Organometallic Chemistry (Lec. 3, Lab. 3, Cr. 4)
CHEM 641 - Selected Topics in Inorganic Chemistry (Lec. 3, Cr. 3)
CHEM 645 - Chemistry of Environmental Pollutants (Lec. 3, Cr. 3)
CHEM 651 - Selected Topics in Analytical Chemistry (Lec. 3, Cr. 3)
CHEM 655 - Organic Chemistry of the Environment (Lec. 3, Cr. 3)
CHEM 660 - Selected Topics in Industrial Chemistry (Lec. 3, Cr. 3)
CHEM 670 - Teaching Techniques in Chemistry (Lec. 3, Cr. 3)
CHEM 673 - Chemistry for High School Teachers (Lec. 2, Lab. 2, Cr. 3)
CHEM 681 - Selected Topics in Polymer Chemistry (Lec. 3, Cr. 3)
CHEM 691 - Chemistry Graduate Internship (Lab. 9, Cr. 3)

There is only a modest overlap with our proposed program, notably of CHEM 580 and CHEM 601. Also, both programs offer a course covering selected/special topics in biochemistry, but due to the broad nature of this topic, no direct comparison is possible. Thus, even with three courses that have overlap in content to some degree, only 10 percent of the courses offered at McNeese have some overlap with courses offered in the proposed program in Industrial Chemistry. While the program offered at McNeese places strong focus on the environment and resource management, the M.S. degree proposed here emphasizes industrial applications. Consequently, the two programs are substantially different in focus and content.

Louisiana State University offers an M.S. degree in General Chemistry with no specific, programmatic focus. The degree is offered with a thesis option and non-thesis option. The degree requires 36 hours of coursework, of which at least 18 must be at the graduate level (7000 and above). Of the 18 hours, no more than 6 hours of credit may be based on a problems course. Because the foundation of the proposed M.S. program in Industrial Chemistry and LSU's M.S. degree program in General Chemistry are both degrees in Chemistry, there likely will be some overlap in course content concerning the theoretical basis of chemistry. On the other hand, the proposed degree program in Industrial Chemistry emphasizes industrial applications of chemistry. Furthermore, the proposed degree program in Industrial Chemistry provides students with hands-on training by means of internships, project courses and thesis research in industrial settings. No comparable emphasis on the theoretical and practical application of chemistry to industry is offered in the LSU M.S. in General Chemistry. Thus, the overlap of the proposed M.S. degree in Industrial Chemistry with the M.S. in General Chemistry offered by LSU is not significant. Graduate courses offered in Chemistry at LSU are listed below (4000-level classes equivalent to 400G-level; 6000-, 7000-, 8000-level classes equivalent to 500-level classes at UL Lafayette).

CHEM 4563 Problems in Organic Structure Elucidation (3)
CHEM 4564 Advanced Organic and Inorganic Laboratory (3)
CHEM 4570 Advanced General Inorganic Chemistry (3)
CHEM 4571 Organometallic Chemistry (3)
CHEM 4581 Introduction to Mathematical Chemistry (3)
CHEM 4594 Introduction to Quantum Chemistry (3)
CHEM 4596 Chemical Thermodynamics (3)

CHEM 4597 Introduction to Statistical Thermodynamics (3)
 CHEM 6001 Chemistry Instruction Through Demonstration and Experiments (3)
 CHEM 6002 Chemical Principles for Teachers (3)
 CHEM 6003 Laboratory Methods for Teachers (3)
 CHEM 6691 Seminar in Current Developments in Chemistry (1-3)
 CHEM 7010 Macromolecular Systems III (3)
 CHEM 7011 Macromolecular Systems IV (3)
 CHEM 7221 Chemical Dynamics and Kinetics (3)
 CHEM 7292 Special Topics in Chemical Physics (2-3)
 CHEM 7750 Special Topics in Analytical Chemistry (2-3)
 CHEM 7760 Special Topics in Organic Chemistry (2-3)
 CHEM 7770 Special Topics in Inorganic Chemistry (2-3)
 CHEM 7780 Special Topics in Macromolecular Chemistry (2-3)
 CHEM 7800 Seminar (1)
 CHEM 7901 Speaking of Macromolecules (1)
 CHEM 8000 Thesis Research (1-12 per sem.)

LSU offers other M.S. degrees with chemistry content worthy of discussion: those with an environmental focus; and one in Industrial Engineering. The M.S. degrees with environmental focus originate in the College of the Coast & Environment, namely in the Departments of Oceanography & Coastal Sciences, Oceanography and Coastal Sciences, and Environmental Sciences. Although our proposed M.S. degree in Industrial Chemistry offers two elective courses that overlap with those in LSU's curriculum, namely Waste Water Treatment (CIVE 460) and Water Quality (ENVS 486), there is no substantial further overlap of the proposed program with any offered at LSU's College of the Coast & Environment. The core requirements for a Master's degree in Environmental Sciences illustrate this program differentiation:

ENVS 7700 Integrated Environmental Issues
 ENVS 7995 Environmental Seminar
 ENVS 4010 Applied Ecology
 ENVS 4035 Aquatic Pollution
 ENVS 4101 Environmental Chemistry
 ENVS 4477 Environmental Toxicology – Introduction and Application
 ENVS 4500 Health Effects of Environmental Pollutants

In addition, LSU offers a Master of Science degree in Industrial Engineering (MSIE). This program has both a thesis option, requiring 30 hours, and a non-thesis option, requiring 36 hours. There are four focus areas: healthcare, human factors, information technology, and supply chain. Students take a minimum of 3 courses within their primary area of specialization. The following 7000 level courses are offered:

IE 7425 Advanced Information Systems Engineering
 IE 7428 Semantic Analysis
 IE 7455 Lean Process Improvement
 IE 7464 Work Physiology
 IE 7465 Occupational Biomechanics
 IE 7466 Human Interaction with Computers
 IE 7467 Cognitive Ergonomics and Work Environments
 IE 7541 Linear Programming Algorithms
 IE 7561 Programming Methods in Operations Research
 IE 7565 Metaheuristics
 IE 7722 Special Topics in Industrial Engineering
 IE 7724 Independent Study in Industrial Engineering
 IE 7762 Supply Chain Systems
 IE 7764 Logistics & Distribution Systems
 IE 7765 Lean Production Systems
 IE 7768 Sequencing and Scheduling
 IE 7771 Design of Manufacturing Systems

Whereas the LSU M.S. in Industrial Engineering offers courses with an industrial focus, our proposed M.S. degree in Industrial Chemistry focuses on the science that underlies Industrial Chemistry. Consequently, there is little overlap in the content covered in our core courses to any of the courses listed above for LSU's M.S. in Industrial Engineering. Indeed, our graduates would complement the graduates of LSU's M.S. in Industrial Engineering (work side-by-side in an industrial setting) rather than directly compete for the same job openings.

The University of New Orleans (UNO) offers a Master's degree with graduate course work with main focus on the traditional areas of Chemistry, namely Organic Chemistry, Analytical Chemistry, Biochemistry, Physical Chemistry, Inorganic Chemistry and Medicinal Chemistry. There is no specific core requirement. Students complete 33 cr. hrs., consisting of 12 cr. hrs. of electives at 5000 or higher level, CHEM 6095 (Specialized Readings), and 18 cr. hrs. of 5000 or higher level CHEM courses based on the following offerings (5000-level classes equivalent to 400G-level; 6000-level classes equivalent to 500-level classes at UL Lafayette):

CHEM 5028 Physical Chemistry Laboratory
 CHEM 5110 Laboratory Methods in Instrumental Analysis
 CHEM 5110 Instrumental Analysis
 CHEM 5210 Intermediate Organic Chemistry
 CHEM 5310 Physical Chemistry
 CHEM 5311 Physical Chemistry
 CHEM 5140 Advanced Physical Inorganic Chemistry
 CHEM 5510 Biochemistry I
 CHEM 5511 Biochemistry II
 CHEM 6007 Experimental Chemistry for Teachers
 CHEM 6090 Specialized Readings in Advanced Chemistry
 CHEM 6091 Specialized Readings in Advanced Chemistry
 CHEM 6092 Specialized Readings in Advanced Chemistry
 CHEM 6093 Specialized Readings in Advanced Chemistry
 CHEM 6095 Seminar
 CHEM 6112 Physical Methods in Analytical Chemistry
 CHEM 6113 Physical Methods in Analytical Chemistry
 CHEM 6115 Special Topics in Analytical Chemistry
 CHEM 6117 Advanced Mass Spectrometry
 CHEM 6210 Advanced Organic Chemistry
 CHEM 6211 Synthetic Organic Chemistry
 CHEM 6212 Structural Organic Chemistry
 CHEM 6310 Advanced Thermodynamics and Kinetics
 CHEM 6311 Statistical Mechanics
 CHEM 6312 Chemical Bonding and Molecular Spectroscopy
 CHEM 6314 Quantum Chemistry
 CHEM 6316 Special Topics in Physical Chemistry
 CHEM 6410 Advanced Comprehensive Inorganic Chemistry
 CHEM 6411 Advanced Comprehensive Inorganic Chemistry
 CHEM 6496 Special Topics in Advanced Inorganic Chemistry
 CHEM 6510 Structural Biochemistry
 CHEM 6513 Physical Biochemistry
 CHEM 6610 Characterization of Materials
 CHEM 6611 Materials Processing
 CHEM 6620 Introduction to Electron Microscopy for Materials Characterization
 CHEM 6621 Advanced Electron Microscopy for Materials Characterization
 CHEM 6696 Special Topics in Materials Chemistry
 CHEM 6710 Medicinal Chemistry

There is only modest overlap with the proposed program, notably of CHEM 6610 and CHEM 6611. Thus, overlap exists for 2/38 courses, which corresponds to an overlap of approximately 5%.

The nearest comparable programs to the one proposed are located at:

<i>Univ. of North Texas, Denton</i>	<i>M.S. and Ph.D. in Chemistry, including a Master's program in Industrial Chemistry</i>
<i>Univ. of Orlando, Orlando, FL</i>	<i>M.S. and Ph.D. in Chemistry, including a Master's program in Industrial Chemistry</i>

No Industrial Chemistry programs exist in Alabama or Mississippi.

If approved, will the program result in the termination or phasing out of existing programs? (Is it a replacement?) Explain.

The Program will not result in the termination or phasing out of existing programs, nor is it a replacement for any existing programs.

If a Graduate program, cite any pertinent studies or national/state trends indicating need for more graduates in the field. Address possibilities for cooperative programs or collaboration with other institution(s).

Please refer to "Section 2. Need" above for a detailed explanation of the need for the proposed degree program.

3. Students

Describe evidence of student interest. Project the source of students (e.g., from existing programs, or the prospects of students being recruited specifically for this program who might not otherwise be attracted to the institution).

A survey of undergraduate students majoring in Chemistry and Chemical Engineering was conducted in February of 2018. Of the 23 respondents, 20 (87%) indicated an interest in pursuing a Master of Science in Industrial Chemistry at UL Lafayette.

In addition to having a strong base of potential graduate students arising from our existing undergraduate programs, we developed a recruitment strategy consisting of three key components: (1) establishing pipelines through partnerships with outside state, national, and international institutions; (2) implementing an aggressive traditional recruitment campaign; and (3) launching a non-traditional marketing campaign that utilizes social media.

Our non-traditional recruitment efforts will employ social media including Facebook, Twitter, and LinkedIn. We will post advertisements and links to institutional pages as well as those of professional associations, economic development agencies and industry partners. UL Lafayette now has over 52,000 "fans" alone. We also have the expertise at the University to plan and implement an innovative social media recruitment campaign.

Project enrollment and productivity for the first 5 years, and explain/justify the projections.

Assuming a conservative acceptance rate, the table below reflects projected enrollments for the first five years after implementation.

Projected enrollment:

Table 3. Projected enrollments and student funding sources for years 1-5.

Year	Students			Funding Source			
	Total Enrolled	New Students	Graduated	Industry-Funded	Self-Funded	Research-Funded	Graduate Assistantships
1	10	10	0	1	0	1	4
2	13	3	0	2	1	1	4
3	17	4	8	4	3	2	4
4	22	5	13	6	4	4	4
5	25	3	13	8	6	5	4

The enrollment projections in Table 1 are conservatively based on the analysis of enrollment patterns for the most recent relevant M.S. degree program created in Louisiana (2002), entitled "Environmental and Chemical Science" at McNeese State University. Despite a significantly different programmatic focus, this degree program shares the CIP code of 40.0599 and provides benchmark values for anticipated enrollments. McNeese State's M.S. program reached 33 students in just three years. As stated above, students are expected to graduate in as few as 1.5 years for the non-thesis option; the thesis option will require an additional semesters. While student retention is difficult to predict with certainty, current overall graduate retention rates of 80% for the College of Sciences for full-time students in master's-level graduate programs constitute an appropriate benchmark. It should be noted that the short time commitment required to graduate should limit instances of unforeseen events that require students to resign.

In addition to these projections, the demand for graduate-level industrial chemists in Louisiana is high and growing. Lafayette's 2014 unemployment rate was 4.8% — among the lowest in all metro areas measured (source: HIS). No in-state alternatives exist to the proposed M.S. program in Industrial Chemistry at UL Lafayette. A strong focus of the proposed degree program on industrial employment for our graduates is evident. In a recent survey, 67% of all responding 2009-2013 UL Lafayette alumni graduating with a B.S. in Chemistry found employment in industry. Data for enrollment of B.S. majors in Chemistry at UL Lafayette show an increase of approximately 3% annually from 2010 to 2017. The mean number of undergraduate majors enrolled in the B.S. degree program over the last five years is 73.8 ± 8.5 students (mean \pm SD).

We plan to recruit students from our own campus earning B.S. degrees from Chemistry, Chemical Engineering, and Petroleum Engineering. In addition, because there is considerable overlap with Geosciences in the areas of mining and natural resource exploration, Geosciences will likely contribute graduate students to the program. As was stated above, approx. 67% of those of our recent Chemistry graduates for whom employment information is available are currently employed in industry. Another 21% of the 2009-2014 Chemistry graduates enrolled in graduate programs, many in anticipation of assuming industrial leadership positions. With a mean five-year enrollment of 73.8 chemistry majors, we will provide a new and compelling opportunity for these graduates.

In addition, we plan to recruit graduate students for our program regionally and nationally. One of our strategies will be to send recruiting information to Chemistry programs that offer B.S. degrees in the Gulf Coast region, including HBCUs. We will employ

the GRE Search Service and the McNair Scholars Directory to obtain a list of potential candidates for our program and will reach out to all of them via e-mail. This approach has been a successful recruiting method for other graduate programs within our College. We also plan to extend our social media and web-based presence — including GradSchoolMatch.com and GradSchools.com — to disseminate information about our new program. Of course, corporate-sponsored returning graduate students are a target group of particular significance to us. We will rely on strengthening existing relationships with industries to disseminate information about our new program to regional chemical companies, highlighting its flexibility and the limited impact it will have on the schedules of current employees seeking further training. In addition, we plan to disseminate information about our program on our various University web pages (e.g., Department, College, Graduate School). Successful applicants will be selected based on their undergraduate performance, education background, and GRE scores. Applicants will be required to complete verbal, quantitative, and analytical writing portions of the GRE with a preferred expectation of combined verbal and quantitative score of at least 287. To remain in the program, students will be required to maintain a GPA of 3.0 or above, may not receive more than two grades of C, and in any case may not earn more than 6 credit hours carrying a grade of C.

Provide enrollment/completer data for closely related programs currently offered at the institution.

Enrollment/completer data for Masters in Biology (as an example of a general M.S. degree in the College of Sciences) and a Masters in Geology (as an example of an M.S. degree in the College of Sciences with links to industry, in this case to petroleum exploration):

Fall Enrollments for M.S. in Biology

2011 — 24 students
2012 — 19 students
2013 — 20 students
2014 — 20 students
2015 — 21 students
2016 — 15 students
2017 — 19 students

Completers (academic year) for M.S. in Biology

2011-12 — 07 graduates
2012-13 — 13 graduates
2013-14 — 03 graduates
2014-15 — 08 graduates
2015-16 — 09 graduates
2016-17 — 06 graduates

Fall enrollments for M.S. in Geology

2011 — 49 students
2012 — 49 students
2013 — 66 students
2014 — 69 students
2015 — 88 students
2016 — 89 students
2017 — 83 students

Completers (academic year) for M.S. in Geology

2011-12 — 11 graduates
2012-13 — 11 graduates
2013-14 — 12 graduates
2014-15 — 10 graduates
2015-16 — 18 graduates
2016-17 — 22 graduates

What preparation will be necessary for students to enter the program?

Prerequisites:

Prerequisites for acceptance into the M.S. Program of Industrial Chemistry will include a Bachelor's degree in a related scientific or engineering field. At a minimum, the completion of the following general science requirements is expected: two semesters of Organic Chemistry (lecture and lab), one semester of Analytical Chemistry (lecture and lab), two semesters of Physical Chemistry, one semester of Inorganic Chemistry (lecture and lab), two semesters of Calculus, and two semesters of Physics. A cumulative undergraduate GPA of no less than 2.75 (on a 4.0 scale) on all work attempted, or a GPA of no less than 3.0 for the last 60 semester hours), a satisfactory GRE score, and three supportive letters of recommendation will be required for regular admission into the program.

Moreover, in accordance with Graduate School requirements, the following English language proficiency expectations apply:

UL Lafayette Graduate School has set the following expectations for English Language Proficiency Exams. TOEFL/r IELTS/PTE scores are only one factor of several considered when determining admission.

NOTES: 1) UL Lafayette Graduate School uses a portfolio approach in all admission decisions; 2) Some graduate programs expect slightly higher than the general scores stated below. .

TOEFL: 79 (internet-based test)

IELTS: 6.5

PTE: 53

If a Graduate program, indicate & discuss sources of financial support for students in the program.

In addition to the four graduate assistantships requested from UL Lafayette, some students will be funded by external research grants and by industry partners, as a business recruiting tool for graduates (e.g., internships). Some students will be self-funded. We point out that several companies have pledged student internships. Additionally, industry partners may fund scholarships, the criteria of which will be developed by way of coordination with the sponsor and the UL Lafayette Scholarships

4. Faculty

List present faculty members who will be most directly involved in the proposed program: name, present rank; degrees; courses taught; other assignments.

Primary Faculty with appropriate Graduate Faculty Membership

- Dr. August Gallo; Professor, Organic Chemistry
- Dr. Thomas Junk; Professor, Organic and Environmental Chemistry
- Dr. Tolga Karsili; Assistant Professor, Physical and Computational Chemistry
- Dr. Kathleen Knierim; Associate Professor, Physical Chemistry and Materials Sciences
- Dr. Febee Louka; Associate Professor, Analytical and Environmental Chemistry
- Dr. Salah Massoud; Professor, Inorganic Chemistry
- Dr. Radhey Srivastava; Professor, Inorganic Chemistry and Catalysis
- Dr. Eric Taylor; Associate Professor, Biochemistry and Industrial Safety
- Dr. Hi Yan; Assistant Professor, Analytical Chemistry and Materials Sciences
- Dr. Wu Xu; Associate Professor, Biochemistry
- Dr. Yu Wang; Assistant Professor, Polymer Chemistry

Supporting Faculty with appropriate Graduate Faculty Membership

- Dr. Andrei Chistoserdov (BIOL)
- Dr. Sophie Plouviez (BIOL)
- Dr. Rakesh Bajpai (CHEE)
- Dr. William Chirdon (CHEE)
- Dr. Rafael Hernandez (CHEE)
- Dr. Ramalingam Subramanian (CHEE)
- Dr. Daniel Gang (CIVE)
- Dr. Durga Poudel (ENVS)
- Dr. Aubrey Hillman (ENVS)

Project the number of new faculty members needed to initiate the program for each of the first five years. If it will be absorbed in whole or part by current faculty, explain how this will be done. Explain any special needs.

The program will be absorbed by current faculty. The additional teaching load will be divided evenly among the faculty members so that each will develop no more than one new course. Some of these faculty members teach lower level courses. In cases in which graduate faculty members are assigned to teach a graduate course in Industrial Chemistry, instructors will be assigned to teach lower level courses in order to replace those graduate faculty members reassigned to graduate classes. In addition, adjuncts will be hired as needed to help teach lower-level undergraduate classes. Finally, graduate teaching assistants will take on significant responsibilities in laboratory classes to provide support for our graduate faculty.

Describe involvement of faculty – present and projected – in research, extension, and other activities and the relationship of these activities to teaching load. For proposed new faculty, describe qualifications and/or strengths needed.

The Department of Chemistry in the College of Sciences already has in place a highly-structured framework for the management of teaching loads, based on research, service, and other activities. All new faculty members who teach at the graduate level are

required to hold a terminal degree, and must demonstrate success in research, teaching, and service, as part of their annual performance evaluation and membership on the Graduate Faculty. Recent hires of a surface chemist interested in catalyst development, as well as a polymer chemist have shifted faculty interests towards a more applied research agenda that is well in line with the proposed program. Chemistry faculty members have received multiple university awards for outstanding advising and two recent college awards for outstanding teaching, in addition to a college award for outstanding research and a system-wide outstanding faculty award. During 2018, faculty served on twelve editorial boards and were invited to give five presentations at national and international meetings, demonstrating international recognition.

A further involvement of select faculty members will consist of the administration of the proposed program. These will include the departmental Graduate Coordinator (Dr. August Gallo) and the departmental Graduate Committee (Drs. Karsili, Massoud, Yan, and Xu). The Graduate Coordinator will coordinate all committee activities, review the quality of advisement and mentoring on an ongoing basis, and serve as liaison to the University Graduate School. Dr. Gallo has prior experience as Graduate Coordinator of a recently created interdisciplinary Ph.D. program and will assure that all advising meets the expectations of the College and the Graduate School. Establishing good communication between graduate students and advisors is critical for establishing clear expectations. An **Individual Development Plan (IDP)** serves as a communication tool between the graduate student and the major advisor, and provides a planning process that identifies both professional development needs and career objectives. The IDP establishes a path to communication, recognizes expectations, identifies independent criteria for success, and is flexible to allow new opportunities to be pursued when available. The IDP will include defined time and resources devoted to research and career development activities in addition to contributions to the advisor's research. By the end of the second semester in the program, the graduate student and the advisor will work together to create an IDP specifically for the needs and interests of the student. After it is signed by both parties, it will be submitted to the graduate coordinator and reviewed and modified, if needed, by the end of each semester.

Further guidance will result from the planned membership of the Department in the Professional Science Masters (PSM) program (www.professionalsciencemasters.org), which will provide useful advice concerning various aspects of program administration.

5. Library and Other Special Resources

Are present library holdings in related fields adequate to initiate the program? To meet program needs in the first 5 years, what will be needed? Do other institutions have library resources available to faculty & students for the proposed program?

Present library holdings in the related fields of Chemistry, Biology, and Environmental Science are adequate to initiate the Master of Industrial Chemistry. The Library supports instruction and research with collections in a variety of formats. The Library also provides electronic access to materials through the library's website.

Other institutions' resources are available to faculty and students for the Master of Science in Industrial Chemistry through Interlibrary Loan and The Louisiana Library Network (LOUIS). The Library participates in formal arrangements to supplement the collections owned by the Library. This includes participation in LOUIS, a consortium that allows Louisiana academic libraries to share library resources, collaboratively purchase resources, and extend borrowing privileges across the state. Through the library's membership in LOUIS, students and faculty may obtain a LOUIS card and directly borrow materials from all colleges and universities throughout the state of Louisiana.

Indicate/estimate total expenditure for the last two fiscal years in library acquisitions for fields or departments offering or related to the proposed program.

Total Library Expenditures for 2016/2017 are as follows:

- Print and Electronic Serials Subscriptions :
\$1,003,362
- Online Research Databases (includes LOUIS Consortium Membership):
\$972,294
- Print and Electronic Books:
\$56,056

Project library expenditures needed for the first 5 years of the program.

The Master of Science in Industrial Chemistry will leverage library expenditures, as they support other Graduate programs within the School. As such, no additional library expenditures are anticipated.

What additional special resources, other than library holdings, will be needed?

There are no anticipated additional special resources needed, other than library holdings.

6. Facilities and Equipment

Describe *existing* facilities (classrooms, labs, offices, etc.) available for the program. Describe present utilization of these facilities that are assigned to the sponsoring department.

The Department of Chemistry is located in Montgomery Hall, a two-story building dedicated to departmental needs with two auditoria, three additional classrooms, and seven teaching labs. The B.S. degree program in Chemistry is accredited by the American Chemical Society and has a full complement of major scientific equipment. In addition, 6,000 ft² of dedicated research space is available to faculty and students, equipped to accommodate research in all major sub-disciplines (analytical, organic, inorganic, polymer, and physical). Teaching and research are further supported by two well-stocked, fully staffed stockrooms, individual office space for all faculty and a student study lounge. The Department of Chemistry currently houses two instrument laboratories and is fully equipped with all major instrumentation required for the proposed graduate program. All instruments are accessible to all research groups. A list of major instrumentation has been posted at <https://chemistry.louisiana.edu/node/161>.

Labs:

Currently available laboratory space will suffice with renovations for the projected enrollment of 25 graduate students five years after the program is introduced. Montgomery Hall laboratories in rooms 209, 210, 237, 238, and 242-246 are currently dedicated to research and can, combined, accommodate approximately 25 graduate students. The partitioning of two additional laboratories (rooms 118 and 221) will create additional research space for graduate students projected to be enrolled in the newly approved interdisciplinary doctoral program in Earth and Energy Sciences. We anticipate establishing joint projects with the Department of Chemical Engineering and with local industries, and we envision that some applied graduate training will be conducted at those locations.

Other Physical Facility Needs:

We will require additional office space for graduate research assistants and teaching assistants, so that they can hold office hours in a consistent location where undergraduate students in their courses/labs can be supported. It will also be important that graduate research assistants have suitable office space near the labs where they work so that faculty can appropriately supervise them and provide mentorship. These requirements will necessitate the purchase of desks, a network printer, and the conversion of MY 104 to a graduate student office.

Describe the need for new facilities (e.g., special buildings, labs, remodeling, construction, equipment), and estimate the cost, proposed sources of funding, and estimated availability for program delivery.

The renovations detailed below will be completed by the university during the fall of 2018. Pending approval, the new degree program will be launched in the fall semester of 2021.

Estimated expenses required to initiate the proposed program arise from the need to provide adequate space for twenty-five graduate students and an upgrade of research space to accommodate graduate research and break down as follows:

Item	No.	Unit cost	Cost
Computer desks	25	\$200	\$5,000
Chairs	25	\$50	\$1,250
Filing cabinets	3	\$200	\$600
Printers, networking gear	3	\$1000	\$3,000
Computers	5	\$800	\$4,000
Partitioning panels, 48x48	20	\$200	\$4,000
Partitioning panels, 48x36	26	\$200	\$5,200
Hood for MY 118	1	\$25,000	\$25,000
Ductwork for hood in MY 118	1	\$20,000	\$20,000
Glassware, MY 118	n/a	\$2000	\$2,000
Cabinet work, MY 207	n/a	\$13,500	\$13,500
Total:			\$83,550

Justification:

Computer desks, chairs, filing cabinets, printers and network gear will accommodate up to 25 graduate students, to be housed in MY 104, MY 120A, and MY 221. These are large rooms, which will be subdivided into student office cubicles with the requested partitioning panels. Three desktop computers are requested to supplement desktop and tablet computers personally owned by students.

A hood is requested for MY 118 because a shortage of hood space in MY 118 limits the usefulness of this lab for graduate

research. In addition to its purchase for \$25,000, as quoted by Fisher Scientific, \$20,000 of ductwork will be required, based on an estimate from UL facilities management. This will cover ducting through the first and second floors, as well as through the roof, installation of a new blower unit, mounting, electrical work and plumbing connections.

Glassware and cabinet work are requested for MY 207, to prepare this largely unused lab space for graduate research. \$13,500 is based on a recent quote from Fisher Scientific for benches and cabinets. In addition, \$2,000 will be spent to purchase basic glassware for this lab.

7. Administration

In what department, division, school, college, or center/institute will the proposed program be administered? How will the new program affect the present administrative structure of the institution?

The Master of Science in Industrial Chemistry will be administered by the Department of Chemistry, an academic unit in the Ray P. Authement College of Sciences. The new program will have no impact on the present administrative structure of the institution.

Describe departmental strengths and/or weaknesses and how the proposed program will affect them.

The strength of the Department of Chemistry resides in its faculty members. These dedicated individuals are research active, publishing approximately 1.5 manuscripts annually per faculty member. Funding of single and multi-year research projects currently exceeds \$1M (funding obtained by chemistry faculty serving as PI's or Co-PI's), for research projects supported by NSF and NIH among other agencies. Many of our current faculty members currently have research interests that integrate well into the objectives of an Industrial Chemistry program. This is exemplified by departmental funding (two prior Louisiana Board of Regions Industrial Ties awards, co-sponsored by Coastal Chemical Corp. and Albemarle Corp.) and by faculty interests in environmentally friendly, "green" methods, including biofuel manufacturing (Drs. Xu, Gallo) and the use of supercritical water as a benign solvent (Dr. Junk). This work will see a major expansion as the limitations of an undergraduate-only program will be overcome. It is anticipated that future hires will further strengthen focus on renewable resources and green chemistry. Funding is shared among senior faculty with established research programs and early-career faculty who are just beginning their independent research careers. At this point, the principal limitations on the faculty members of the Department of Chemistry concern the lack of a graduate program. Thus, these faculty members rely heavily on undergraduate students to assist their research, hire graduate student research assistants from other departments in the university, or collaborate with chemists located at other universities. The successful implementation of the proposed degree program in Industrial Chemistry will result in an infusion of chemistry graduate students to augment and facilitate research endeavors directed by Chemistry faculty members. In addition, the newly approved, interdisciplinary doctoral degree program in Earth and Energy Sciences will attract additional graduate students to the Department of Chemistry. The inclusion of graduate students from the MS degree program in Industrial Chemistry and from the doctoral degree program in Earth and Energy Sciences will enhance research productivity of Chemistry faculty members in addition to enhancing their ability to attract extramural funding for research. The focus of the proposed degree program on industrial applications will create opportunities for collaborative research efforts in applied areas of chemistry. Thus, implementation of the proposed degree program will allow for an expansion of research efforts in Chemistry at the University of Louisiana at Lafayette.

Both the proposed Master's program and the Department of Chemistry as a whole will further benefit from the establishment of an Industrial Advisory Board, which currently is being created and will meet once per semester to review progress of the program. In addition, the Advisory Board will assist in strengthening the Departments industrial ties and creating further opportunities for student internships.

The proposed M.S. degree program in Industrial Chemistry is supported by the following companies and by business development organizations in Lafayette. Notably, most of these companies indicate a willingness to offer summer internships or other practical or economic opportunities to our students. Letters of support are provided with this proposal.

AllChem
Clariant
Nalco
Advanced Applied Research
EcoServe
MicroChem
Coastal Chemical Co.
LEDA
OneAcadiana
Sasol

8. Accreditation

Describe plan for achieving *program* accreditation, including: name of accrediting agency, basic requirements for accreditation, how the criteria will be achieved, and projected accreditation date.

The proposed degree program in Industrial Chemistry will not be accredited.

If a graduate program, describe the use of consultants in developing the proposal, and include a copy of the consultant's report as an appendix.

Consultants were not used for the development of this proposal.

9. Related Fields

Indicate subject matter fields at the institution which are related to, or will support, the proposed program; describe the relationship.

Related subject matter fields include the following: Environmental Science, Biology, Chemical Engineering, and Civil Engineering. Each of these disciplines will offer elective courses at the graduate level to students enrolled in our degree program. In addition, graduate faculty members from each of these disciplines may serve on advisory committees for graduate students enrolled in our degree program.

10. Cost & Revenue

Summarize additional costs to offer the program, e.g., additional funds for research needed to support the program; additional faculty, administrative support, and/or travel; student support. How will the program affect the allocation of departmental funds?

Our proposed program can be fully implemented with modest costs to UL Lafayette. These will include costs for renovations, and four new and continuing teaching assistantships for graduate students. These students will mainly assist in the teaching of laboratory courses. However, no new additional funds will be required for supplies, operating expenses, or travel. Costs incurred by graduate assistantships represent a minimal but necessary investment and will be matched by several industry-supported internships, and offset by tuition revenue.

The proposed degree program will have the following costs associated with its implementation:

1. Modest renovations to Montgomery Hall to create laboratory bench-space for graduate students; the purchasing of desks, computers, chairs, printers and filing cabinets to accommodate graduate students. Accommodations for two additional graduate students have already been made. Together these renovations and upgrades total \$83,550.
2. Four new and continuing graduate teaching assistantships will be funded at an annual minimum stipend of \$13,500 in addition to accompanying tuition and fee waivers. The teaching assistants will assist in the teaching of laboratory classes and will thereby offset the teaching loads of graduate faculty. In addition, the teaching assistantships provide invaluable training for the next generation of professional chemists. The annual cost of the stipends for these teaching assistantships is \$54,000.


Graduate assistantships serve an important role in recruiting and retaining highly-qualified students. Graduate assistantships also help to offset faculty workloads, which are expected to increase with the inception of a graduate program.

*On the separate budget form, estimate new costs and revenues for the projected program for the first four years, indicating need for additional appropriations or investment by the institution.

Outside of revenue from tuition & fees, explain and justify any additional anticipated sources of funds, e.g., grants (in hand, promised, or in competition), institutional funds, etc.

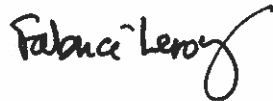
CERTIFICATIONS:

Primary Administrator for Proposed Program



Date: 8/20/19

Dr. Azmy S. Ackleh, Dean of the Ray P. Authement College of Sciences



Provost/Chief Academic Officer

Date: 8/20/19

Dr. Fabrice Leroy, Assistant Vice President for Academic Affairs/Academic Programs

Management Board/System Office

Date

SUMMARY OF ESTIMATED ADDITIONAL COSTS/INCOME FOR PROPOSED PROGRAM

Institution: University of Louisiana at Lafayette

Date: July 13, 2018

Degree Program, Unit: Master of Science in Informatics, Ray P. Authement College of Sciences

FTE = Full Time Equivalent (use the institution's standard definition and provide that definition).

EXPENDITURES								
INDICATE ACADEMIC YEAR:	FIRST		SECOND		THIRD		FOURTH	
	AMOUNT	FTE	Amount	FTE	AMOUNT	FTE	AMOUNT	FTE
Faculty	\$		\$		\$2,200	20%	\$4,400	40%
Graduate Assistants	\$54,000		\$54,000		\$54,000		\$54,000	
Support Personnel								
Fellowships and Scholarships								
SUB-TOTAL	\$54,000		\$54,000		\$56,200		\$58,400	
REVENUES								
	AMOUNT		AMOUNT		AMOUNT		AMOUNT	
Facilities	\$83,550		\$		\$		\$	
Equipment								
Travel								
Supplies								
SUB-TOTAL	\$		\$		\$		\$	
TOTAL EXPENSES	\$83,550		\$0		\$0		\$0	
REVENUES								
Revenue Anticipated From:	AMOUNT		AMOUNT		AMOUNT		AMOUNT	
*State Appropriations	\$		\$		\$		\$	
*Federal Grants/Contracts								
*State Grants/Contracts								
*Private Grants/Contracts								
Expected Enrollment	10		13		17		22	
Tuition	\$36,373		\$54,558		\$78,806		\$109,116	
Fees	\$18,258		\$27,387		\$39,559		\$54,774	
*Other (specify)								
TOTAL REVENUES	\$54,631		\$81,945		\$118,365		\$163,890	

* Describe/explain expected sources of funds in proposal text.



University at Buffalo
The State University of New York

Department of Chemistry
Professor Joseph A. Gardella, Jr.
SUNY Distinguished Professor of Chemistry

Review of CIP 40.0599, Master of Science in Industrial Chemistry

DRAFT

SUMMARY Analysis: General Assessment, Comments, and Suggestions

The proposal describes a desirable and realistic new degree program, from a solid and competent chemistry department at the University of Louisiana at Lafayette (ULL). The strength of the proposed program is the focus on preparing students in chemistry, chemical and petroleum engineering with a targeted M.S. curriculum that prepares students for work in a critically important regional industry. There were a number of concerns about the faculty experience with industry collaborations due to lack of specific information. The course designs were difficult to interpret; syllabi for courses would have been useful. No evidence of detailed industry collaboration through an industry advisory process was a weakness especially given the reliance on industry internships in the non-thesis M.S. option.

This reviewer recommends approval, but identifies concerns with the information within the proposal. The leaders and of the program should consult with the Professional Science Masters (PSM) (www.professionalsciencemasters.org) program to take advantage of the curricular suggestions to strengthen the experiences outside of scientific research that bring breadth to the candidate for employability. Two examples are the development of an introductory business course in the curriculum and a professional ethics course for all students. These are central to the PSM program and this program would benefit from having those courses in the M.S. degree program.

This reviewer suggests careful and specific guidance from the Louisiana Board of Regents to help fine tune a number of aspects that guarantee full consultation from local industry partners through a formal industry advisory board (IAB). The IAB could help develop and document the breadth of course offerings and provide detailed knowledge to the Chair and faculty about the capacity to implement a competitive professional M.S. degree targeted to and aligned with regional industrial employment needs.

A. Program Design

1. To what extent does the proposed breadth of course offerings represent a broad, well-integrated knowledge of the discipline?

The proposal describes the requirements for courses and identifies new courses in the plan for the roll out of the courses that are to be developed or used. There are no syllabi for the new courses; for example, a new course in "Industrial Organic Chemistry" is

listed, without a syllabus that could guide the reviewer to the content. This is part of a larger problem throughout the program description¹

2. If the program is interdisciplinary, to what extent is it coherent as a program?

This program is only interdisciplinary in offering courses from other departments which may be relevant to the individual student. There is no system of alignment for the choices that have been made to list courses and it is assumed that the faculty mentor will help guide that choice.

3. How well does this program take into account the way the discipline or field is moving?

There is a dearth of information about the companies that might serve as a partner to this program. A short list of industries "identified to date for participation in the M.S. program" is on page 4. This was supplemented with a list of former internship sites. There is no description of whether the identification included any consultation in a systematic way to gain information that can guide the development of standard Memoranda of Understanding for the students, faculty and industry partners in internships.

The reviewer is concerned with the lack of information that might have been informed by considering the guidance of the PSM program. The field that this reviewer considers is the development of targeted science M.S. degree programs that seek to help prepare and transition students to employment in industry, not "industrial chemistry". I would note that there is one PSM program in Louisiana, at Southeastern Louisiana University, in Integrated Science and Technology. Faculty and leadership at SLU might be good resources for the Chemistry Department at ULL.

I find this proposal does not carefully define what the faculty or industry partner vision is for priorities in industrial chemistry. I understand it is informed by some perception of the regional chemistry manufacturing industry. Some information is given from state and regional economic development and the American Chemistry Council (once known as the Chemical Manufacturers' Association). However, it is curious that national salary information is provided just below this, and not the regional salary information that would be relevant to the students and companies that are targeted.

4. How well do the requirements (curriculum, research, etc) suit the program? Are they appropriate for a program of high quality?

¹ A major problem with this proposal for this reviewer is the lack of detail of who determines the "industrial" content for courses, and the student thesis or internship. I believe that the faculty should have the final say in this process, but is there a Department graduate advisement committee and Director of Graduate Studies that can serve as leadership for the advising process?

It is common in Industry University Cooperative Research and Professional Science Masters programs to have a detailed consultation process (industry advisory board) that provides input that the faculty can then use in their decisions in guiding the program and individual students. I saw no description of that kind of process. It is absolutely needed for this program.

The list of courses available seems suitable, but as noted, there is limited content information for the new courses focused on industrial chemistry. Overall there is a dearth of information about the type of thesis research that constitutes industrial chemistry and the experience of faculty in industrial collaborations and industrial funding that might inform the content of the curricula and research. It is very hard to tell from the information the level of expertise of the faculty in developing relevant curricula and research because of the limited experience with industry collaboration as listed in present, pending and past research (see below, item D2). Again, the appointment and consultation from an IAB can help mediate some of this concern.

5. How do the program's design and its fit with other offerings in the department or college reflect upon its potential viability and growth?

From this reviewer's perspective, this is the strongest part of the proposal. The Department's proposal to focus on retaining B.S graduates in chemistry, chemical engineering and petroleum engineering as M.S. students is sound and should be supported. While the number of majors has increased and seems consistent as a recruiting base, it would have been more important to rely on the graduation rate for majors in the program or at least a number of graduates each year. This information is published annually in American Chemical Society Annual Report of Earned Degrees in Chemistry. This reviewer looked up the latest information for 2015-16 which shows 14 B.S. graduates total, 4 with ACS certification, but the previous year 2014-15 shows 21, 5 with ACS certification². While there may be typically 73 students in the major, there is no information on time to degree or retention provided.

6. Does the program use alternate, creative forms of delivery? Please address the utility of delivery approaches (including online and/or hybrid) in offering educational opportunities in the proposed program.

There is no mention of online courses that are currently in place for the undergraduate B.S. degree. Hybrid courses and online courses would be helpful for students performing internships in industry.

B. Need

1. Based on your experience and what is provided in the proposal, to what extent do the region, state, or nation need students in this discipline, at this level, at this time?

While this reviewer has noted some deficits in data that underlie the documentation of the program need, I am convinced of the need for the program given the proximity of industry sites and the description of expansion on page 7.

2. To what extent is this program likely to address those needs effectively?

As stated above, this is not clear because there is not a description of a consultation process with industry as partners, or an advisory committee structure that could help

² ACS Certified B.S. degrees were historically aligned with easier industry acceptance for employment, although the current value is not clear to this reviewer. The ACS Committee on Professional Training provides regular reviews of ACS Certified programs.

inform and guide the process. A further weakness is the lack of information about the faculty's experience in collaboration with industry on research or even sabbatical leaves in industry.

C. Students

1. How realistic do enrollment projections appear to be?

This reviewer finds the enrollment projections and recruitment plans to be strong and well documented. Table 3's data is well sourced and projects a typical enrollment of 12-13 students when fully operational in five years' time. The recruitment plan includes a good plan to recruit students with strong diversity, which is desired by his raises questions with the current federal immigration discussion as to whether industry partners will pay for the Visa and Green Card costs for potential employees.

There was not much information on the academic credentials for admission beyond GPA for students outside the chemistry major. This referee's question was: What courses will be offered to bring Chemical and Petroleum Engineering students up to the standard of a B.S. chemistry major?

2. Does there appear to be an adequate supply of qualified students in the area?

Yes, the projections for chemistry department graduates and chemical engineering graduates (from ACS data) give a solid base. However, there is no commentary on why a chemical engineering graduate would choose an industrial chemistry M.S. over a masters in engineering (although that would be from a different university).

Is there enough financial support budgeted to attract able students to this program?

This is a particularly difficult question for me to answer. It appears that six of the students each year over the next five years will be given a graduate teaching assistantship of ca. \$10,000 plus a tuition waiver. Even for M.S. students this is a very low stipend for a chemistry program. I realize that there is not a proposal to compete with Ph.D. departments, but I am of the belief that a stipend for graduate study should be a living wage.

3. Are the standards for admission and for measuring performance clear and reasonable?

Yes. The standards from pages 15 and 16 are clear.

Is there a process for removing unsuccessful students from the program in a fair and timely manner?

I did not see a description of the criteria for removing students from the program. I can imagine that grades in courses in the first two semesters will be critical factors, but this was not described.

4. Is the level of performance required in courses and on qualifying and candidacy exams clear and reasonable?

There was no mention of qualifying or candidacy exams. The discussion of course and curriculum did not have an expectation of a particular overall GPA or the importance of grades in core courses as criteria for success in the program.

D. Faculty

1. Does the department appear to have sufficient faculty strength and stability to successfully launch and maintain this program?

The statement within the document indicates that the current faculty (numbers and area of expertise) are sufficient to handle the teaching loads and advising of students. The also list faculty outside the department that will be engaged. I believe this analysis is correct.

2. To what extent is the faculty's apparent knowledge and understanding of their areas thorough and up-to-date?

This is very hard to know. There is a certain optimism projected by parts of the narrative that the faculty has research expertise, publications and funding. However, with access to current, past and pending funding, it is clear that the majority of funded and research active faculty rely on funding from the Board of Regents, and a small number of faculty have had and apply for NSF and NIH funding.

There is one reference to previous industry collaboration on a research project ostensibly funded by industry (R. Srivastava: Coastal Chemical (formal grant)) but that was not listed in the past research funding list.

The number of internships is listed in this added information.

For these reasons, I am strongly recommending that the Board of Regents suggest some formal portions of coordination of the program with the Professional Science Masters program and also develop a formal industry advisory board with regular meetings and input from industry collaborators on the internship process. For example, the internships should have a formal MOU established with the student's understanding of the role and responsibilities of a faculty advisor, an industry collaborator and the expectations for the student and grading policy.

Can they cover the proposed range of courses now, adequately?

My field of research spans analytical, environmental and materials chemistry. As is the case for many mid-sized chemistry departments, organic and physical chemistry dominate the faculty numbers and analytical, inorganic and materials chemistry are underrepresented. I think a more attention to materials chemistry must be added in the near future. Further, there are no faculty that profess expertise in green chemistry and sustainability. Whether the companies on Louisiana are committed to the future of reducing climate impacts by moving from petrochemicals or not, there should be training for the future, which involves attention to green chemistry and sustainability in a program like this.

Frankly this last area is another place where participating in the PSM program would open opportunities to look at programs that cover these topics and consider the design of courses and internships that educate students in the growth of these areas for the

future.

3. What is your impression of the caliber of the faculty's research and publications? How important to the field is the work being done?

Overall, the faculty report significant publications in strong research journals.

As a note of importance, I have looked at the newest faculty who might have impact in this proposed program. Professor Wang, who will serve significantly in this program as the only polymer chemist, is just getting started but comes from an exceptional background at CMU under Professor Matyjaszewski. Professor Yan has a broad background but only two papers as lead author.

There is a dearth of papers that involve research into materials or methods that would be reflective of industry collaborations. Professor Gallo has listed three papers that may have been from such a collaboration, Professor Knierim one paper on pitting corrosion, Professor Louka and Professor Massoud jointly from work on petroleum in the marine environment.

4. Is the faculty generally recognized nationally, e.g., by appointment to national honorary bodies, committee work, editorial service, or by other recognition?

I have not seen such recognition listed in the short c.v.s. Internal recognition for teaching quality is significant and a number of faculty in Chemistry have been recognized.

5. Is there any indication that excellence in teaching and mentoring is a major consideration?

I did not see an explicit University recognition for excellence in teaching. That would have been good evidence if multiple faculty had that recognition. I don't know if the University has a mentoring award.

6. Is adequate faculty guidance projected for students with regard to program design, advising, research, and opportunities for learning beyond the classroom?

Adequate is probably the right adjective. It would be nice if the Department would profess expectations for graduate mentoring and advisement. A process which shows that besides the major advisor, an oversight graduate committee should be formed and that committee responsibilities for other faculty are written up in graduate guidelines for the faculty and student.

E. Resources

1. To what extent do present library holdings or digital access appear adequate to initiate the proposed program?

The statement on Page 17 indicate that the faculty feel that the library holdings are adequate and that the LOUIS system supports the broader access to give access to digital subscriptions and inter library loan.

2. What are the limitations of the library in each sub-discipline in which graduate seminars or degree options are offered and theses directed?

Not described.

3. Are described plans to improve the library's holdings or program resources adequate and realistic?

This is hard for me to assess. I would accept the faculty's statement.

4. To what extent are facilities and services adequate for the purposes of the program? Do you sense or perceive any particular inadequacies?

There was no list of instrumentation to support research in the department and none found at the Department website.

F. Administration

Does the proposed administrative structure appear appropriate? Are there any apparent advantages or disadvantages to this proposed structure?

I wish there was more detail about the oversight.

G. Accreditation

Is information on specialized, programmatic accreditation presented? If not, should it be? No, but this is not probably needed at this point. I would expect that the Regents or the institutional leadership would provide some outside review of the Department at regular times. This is not mentioned.

H. Related Fields

Does the program proposal identify sufficient support from related fields or programs? If not, discuss what sufficient support from related supports might be.

I. Costs

1. Does the proposed budget appear sufficient to launch a quality program?

See my concerns about graduate fellowships.

2. Are projected costs realistic? Are there elements that are omitted or downplayed that should be in the budget for a quality program of this nature?

Again, the graduate fellowships.

3. Is the amount of financial support projected available sufficient to sustain the program at high quality?

The amount of external funding separate from Board of Regents support is quite limited. The number of collaborations between faculty and industry is small and not described well. This leaves a number of questions about the depth of collaboration for the students and understanding and advising for the students.

4. Is there evidence that institutional support is firmly enough committed for the program to continue at high quality?

The Department seems ready for this program and it is clearly justified by the students and enrollment information.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "J. A. Gardella, Jr.", with a stylized flourish at the end.

Joseph A. Gardella, Jr.
SUNY Distinguished Professor of Chemistry
Director, Interdisciplinary Science and Engineering Partnership (ISEP) with Buffalo
Public Schools



Dr. Azmy S. Ackleh, Dean
Ray P. Authement College of Sciences
University of Louisiana at Lafayette

July 16, 2019

Dear Dr. Ackleh:

Our proposal to introduce a M.S. program in Industrial Chemistry was recently reviewed by Professor Joseph A. Gardella, an external reviewer at the University at Buffalo, New York. Dr. Gardella is supportive of our proposed program and expresses the opinion that it addresses a clear need. However, he expressed some concerns that I would like to address below:

A. Program Design

The reviewer suggests that an ethics component should be included in the curriculum. A statement was added to the revised proposal that ethics will be covered within the context of the seminar program. He also proposes the inclusion of an introductory business class. Business electives were included in our initial draft but subsequently removed. Two business electives have now been added to the revised proposal.

1. To what extent does the proposed breadth of course offerings represent a broad, well-integrated knowledge of the discipline?

The reviewer expected more specific information concerning course content. A more detailed description of the topics covered by core/required courses was added to the proposal. The course contents were reviewed by the departmental curriculum committee. A statement to that extent has been added to the proposal.

2. If the program is interdisciplinary, to what extent is it coherent as a program?

The reviewer would like to see more system alignment. All students are required to enroll in all core courses and all courses (including electives) are in line with the theme of Industrial Chemistry. It is a declared objective of the proposed program to offer more flexibility than traditional programs, which typically enforce strict alignment (e.g., Analytical Chemistry, Inorganic Chemistry). Clearly, the reviewer is correct that faculty mentorship is more crucial than in a traditional setting, where choices are rather limited.

3. How well does this program take into account the way the discipline or field is moving?

We will follow the reviewer's suggestion to seek guidance from a Professional Science Master (PSM) program. Also, as suggested by the reviewer, a formal Industrial Advisory Board (IAB) will be assembled to review and provide guidance about recent trends in the industry. During prior contacts with local companies, it became apparent that industry partner vision for priorities in industrial chemistry is difficult

to define because industrial partners tend to have very different visions, according to their specific needs. Regional salary information, as suggested by the reviewer, was obtained and added to the revised proposal.

4. How well do the requirements (curriculum, research, etc.) suit the program? Are they appropriate for a program of high quality?

The reviewer proposes a departmental Graduate Advisement Committee and a Director of Graduate Studies/Graduate Coordinator who can serve as leaders for the advising process. The Department agrees and has put tentative appointments in place, pending approval after the faculty returns for the Fall Semester. As far as the suitability of course offerings is concerned, it should be noted that an extensive review was performed of the course offerings of similar (out-of-state) programs to assure a reasonable degree of consistency among Industrial Chemistry programs. As stated above, an IAB will be implemented to assure the appropriateness of course contents from an industrial point of view. More specific information concerning the contents of all required courses has been added to the draft.

5. How do the program's design and its fit with other offerings in the department or college reflect upon its potential viability and growth?

Overall, the reviewer considers this topic to be well addressed, but states that no information on time to degree or retention is provided. We respectfully disagree: The initial draft is fairly explicit concerning the number of students anticipated and the time required to complete the proposed degree, including a semester-by-semester discussion of the curriculum. Consequently, some redundancy has been added concerning anticipated enrollment times. Retention rates are difficult to estimate for a program that has not been created yet, but the college average may be a good indication.

6. Does the program use alternate, creative forms of delivery?

The reviewer proposes hybrid/on-line courses: While no such courses are planned at the onset of the new program, a statement was added that this is envisioned once the program has become established.

B. Need

1. The reviewer clearly agrees that there is need for the proposed program.

2. To what extent is this program likely to address needs effectively?

A statement about this has been added. Consultation will take the form of regular IAB meetings, as well as (already existing) interactions with companies offering internships, to assure that such internships have academic merit and students are prepared for the job at hand. While the Department of Chemistry's current industry contacts are not as strong as they are expected to become eventually, the ones that do exist were not highlighted in the original proposal. A statement discussing prior BoR industrial ties funding and other collaborations has been added. The reviewer envisions formal MoU's with companies or sabbatical leaves in industry, and while this might be worthwhile to pursue, given that existing industry contacts, e.g., in the geosciences or computer sciences at UL Lafayette, have no formal MoU's, this is unlikely to materialize.

C. Students

1. How realistic do enrollment projections appear to be?

Nothing to add

2. Does there appear to be an adequate supply of qualified students in the area?

The reviewer wonders why students would choose an industrial chemistry M.S. over a masters in engineering. A statement concerning the differences in training and scope between the proposed degree versus an engineering degree has been added. The \$10,000 assistantship stipend plus a tuition waiver were deemed insufficient by reviewer. We suggest raising the stipend to \$13,500.

3. Are the standards for admission and for measuring performance clear and reasonable?

Removal of students: graduate school policies for minimum requirements for graduate students will be followed. An explicit statement explaining those policies has been added to the draft.

4. Is the level of performance required in courses and on qualifying and candidacy exams clear and reasonable?

Qualifying exams are uncommon for M.S. programs and none is planned. The rules of the Graduate School were used as a foundation for the following statement in the updated proposal: successful applicants will be selected based on their undergraduate performance, education background, and GRE scores. To secure unconditional admission, they will be required to complete verbal, quantitative, and analytical writing portions of the GRE and to have a minimum combined verbal and quantitative score of 287.

D. Faculty

1. Does the department appear to have sufficient faculty strength and stability to successfully launch and maintain this program?

Nothing to add.

2. To what extent is the faculty's apparent knowledge and understanding of their areas thorough and up-to-date?

We agree that an IAB needs to be established; a corresponding statement has been added to the proposal. The reviewer makes a statement that analytical, inorganic and materials chemistry are underrepresented. This must be a misunderstanding: the number of faculty in analytical and inorganic chemistry (4) is identical to that in organic and physical chemistry. Recent hires have added two faculty members with interest in the materials sciences. Further expertise in green chemistry and sustainability will have to be addressed with future hires. However, some faculty are active in this field. A statement has been added to the proposal concerning this fact.

3. What is your impression of the caliber of the faculty's research and publications? How important to the field is the work being done?

The reviewer states that there is a dearth of papers that involve research into materials or methods that would be reflective of industry collaborations. Prior collaborations do exist, as he noticed, but a significant expansion of such collaborations will be more feasible once an industrial chemistry program exists. A statement has been added to the draft that indicates prior industry collaborations (e.g., two BoR Industrial Ties grants).

4. Is the faculty generally recognized nationally, e.g., by appointment to national honorary bodies, committee work, editorial service, or by other recognition?

A statement has been added to the draft that demonstrates national and international recognition of the chemistry faculty.

5. Is there any indication that excellence in teaching and mentoring is a major consideration?

The reviewer was not aware that University recognition for excellence in teaching and mentoring exists. A statement that several faculty have won such awards has been added to the draft. This also implies that they exist.

6. Is adequate faculty guidance projected for students with regard to program design, advising, research, and opportunities for learning beyond the classroom?

A statement about the supervision of mentoring activities has been added. An oversight committee will be implemented.

E. Resources

1. To what extent do present library holdings or digital access appear adequate to initiate the proposed program?

Nothing to add.

2. What are the limitations of the library in each sub-discipline in which graduate seminars or degree options are offered and theses directed?

Variable annual budgets limit what the library can offer. While the UL Lafayette library holdings certainly will have limitations, it is always possible to obtain literature through interdepartmental loan, ask the author to email a PDF, or obtain materials through researchgate.com or other websites.

3. Are described plans to improve the library's holdings or program resources adequate and realistic?

Nothing to add.

4. To what extent are facilities and services adequate for the purposes of the program? Do you sense or perceive any particular inadequacies?

A list of major instrumentation has been put on the departmental website and a link provided in the revised proposal.

F. Administration

More detail about oversight has been added.

G. Accreditation, H. Related Fields

Nothing to add

I. Costs

1. Does the proposed budget appear sufficient to launch a quality program?

2. Are projected costs realistic?

The reviewer's concern about stipends is understandable. On the other hand, the cost of living in Louisiana is not the same as it is in New York. We suggest raising the stipend to \$13,500.

3. Is the amount of financial support projected available sufficient to sustain the program at high quality?

It is difficult to collaborate in the context of a program that does not yet exist. With new hires, we are also shifting more towards applied research with an Industrial Chemistry focus. A comment stating this has been added.

4. Is there evidence that institutional support is firmly enough committed for the program to continue at high quality?

Nothing to add.

Sincerely,

Thomas Junk
Head of the Department of Chemistry