University of Louisville
New Academic Program Proposal Template

Certificate Programs

After approval of the Letter of Intent, certificate programs are to complete the New Academic Certificate Program Proposal template.

All forms are available at:
http://louisville.edu/oapa/new-academic-program-approval-page/new-academic-program-approval

Please ensure all questions are addressed clearly and completely to avoid unnecessary delays. Questions can be directed to the Office of Academic Planning and Accountability through the Program Approval Service Account (PROGAPPR@louisville.edu).

Financial Aid for Certificate Programs:
Students enrolled in stand-alone certificate program are not eligible for federal financial aid. The university elected on 6/30/2012 to opt out of participation in gainful employment requirements with the Department of Education (DOE). UofL students must be enrolled in a degree granting program in conjunction with the certificate program to receive federal aid.

Send the following materials to the
Program Approval Service Account (PROGAPPR@louisville.edu):

- Completed Proposal Template
- Proposed Program Curriculum (complete the table found in Appendix A of this proposal template)
- Course syllabi for any new course offerings
- Faculty Roster Form
- CV for Program Director/Coordinator
- Proposal Budget Form
- Letter of Support from the unit Dean
- Letter of Support from the UofL Libraries
- Letter(s) of Support from any units, departments, or internal or external entities that will be supporting the certificate program

The program approval process will not begin until all of the above documents are received. Please submit all materials listed above at the same time.

General Program Information

Date: 3/2/2020	
Program Name:	Graduate Certificate in Managerial Analytics

Degree Level:	<u>Undergraduate</u>: _____
	<u>Graduate</u> (select one of the following):
	    Post-Baccalaureate _X___
	    Post-Master's _____
	    Post-Professional _____

Number of Credit Hours required:	12
Accreditation or Licensure Requirements (if applicable):	Will fall under AACSB during normal accreditation cycle
CIP Code:	
Department and Department Chair:	Computer Information Systems, Robert Barker
School/College:	College of Business
Program Director and Contact (if different); (please also include title):	Richard Germain, Associate Dean for Programs
Is an approval letter from the Education Professional Standards Board (EPSB) required for this program? If so, attach a copy to this proposal.	No
Proposed Implementation Date for Program (semester and year):	Fall 2020
Anticipated Date for Granting First Degree:	Spring 2021

A. Centrality to UofL's Mission and Strategic Plan

The certificate program is to adhere to the role and scope of the University of Louisville as set forth in its mission statement and as complemented by UofL's strategic plan.

1. Provide a brief description of the program (copy the abstract provided in the program's Letter of Intent here).
(250 words or less; program's purpose/focus, primary areas of study, intended audience, degree level, length of the program, goals/objectives, rationale for program, skills or knowledge that students will acquire, relationship of program to general field).

The College of Business is proposing a graduate level certificate entitled Managerial Analytics. The program is specifically designed for individuals who are preparing for and/or advancing their careers as managers who use data to drive strategy and decision-making. It is complementary to, but far less technical than the MSBA program, which prepares individuals to become data scientists, business analysts, etc.

The certificate aligns with the needs for business analytics talent in the region. The certificate will be entirely available online from the College of Business. Additionally, one of the courses will have a seated option. The certificate will require students to complete 12 credit hours of graduate coursework. Students in the full-time, professional, innovation, and online MBA degree programs will be able complete the certificate at no additional tuition charge and with no additional credit hour requirements. Students completing the stand-alone Managerial Analytics certificate may count the 12 credit hours toward their MBA degree. The courses will not count toward the College of Business Master of Science in Business Analytics degree program.

2. Explain how the proposed program relates to the institutional mission and academic strategic plan.

The University of Louisville mission (https://catalog.louisville.edu/undergraduate/about/mission-statement/) focuses on: (1) teaching at all academic levels in order to develop engaged citizens and leaders; (2) research and creative activity; and (3) engaged service and outreach. The proposed Graduate Certificate in Managerial Analytics will support and enhance the teaching element of University of Louisville mission as the university does not currently possess a certificate of this type in its portfolio.

3. List the objectives of the proposed program.
Explain how the objectives support the university and unit mission, strategic priorities, and institutional and societal needs.

The objectives of the program are to prepare management students at the graduate level with sufficient knowledge and skills for them to be able to navigate through the coming technology revolution surrounding big data, artificial intelligence, and data analytics. The University of Louisville strategic plan (https://louisville.app.box.com/s/88635hggartgmqi7vty27w57rapi9jw5) focuses on the key themes of a great place to learn, work, and invest. The "learn" element concerns "preparing students for the careers and workplaces of tomorrow." The Graduate Certificate in Managerial Analytics is directly connected to fast changing marketplace need for graduate students in data management and data science from a management perspective. The certificate as a standalone credential, but especially when combined with an MBA, provides a powerful set of credentials that will propel students prepared for the modern challenges associated with what is being called the fourth revolution surrounding big data, artificial intelligence, and data analytics. Training of this type serves the societal needs of the Louisville region as it propels a technology base for regional and state economic development.

4. Clearly state the admission, retention, and degree completion standards designed to encourage high quality.
Please be clear and specific.

Admissions requirements: students will be required to possess a bachelor's degree for program admission. The minimum undergraduate GPA will be 2.5. GMAT/GRE scores will not be required. No restrictions to the type of undergraduate degree will be imposed. However, during the admission process, applicants will be made highly aware of the technical nature of the courses.

Graduation requirements: Students are required to complete the 12 credit hour program with a minimum GPA of 3.0.

B. Program Quality and Student Success

1. What are the intended student learning outcomes of the proposed program?

The intended student learning outcomes are:
1. Functional knowledge of data science from a managerial perspective. Functional knowledge involves an understanding of statistics, data management, data acquisition, and data interpretation and reporting.
2. Programmatic or professional understanding of communicating results, especially in terms of data visualization and data storytelling.

2. Describe how each program-level student learning outcome will be assessed (including when data will be collected and how assessment results will be used to improve the program.

The table that follows shows the rubrics expected to be used to assess functional knowledge (as indicated by the dimensions of data management and statistics) and programmatic and professional understanding (as indicated by the dimension of effective communications). Four-point scales will be used with scale points of 1=unacceptable; 2=poor; 3=good; and 4=excellent. Instructors in different courses will apply the rubrics once per year. Instructors will also be expected to a complete a "close the loop" statement for their course. Success will be defined as observing 80% or more of students being rated on average as good or excellent. Results of the analysis will be shared with the program curriculum committee to glean additional program improvements.

Learning objective	Type	Rubrics
Functional knowledge of data science from a managerial perspective. Functional knowledge involves and understanding of statistics, data management, data acquisition, and data interpretation and reporting.	Data Management	Relational Modeling
		Design of Relational Databases
		Normalization
		Structured Query Language
		Procedural Programming in SQL
	Statistics	Data preparation (cleaning, integration)
		Introduction to basic statistical concepts
		Working with different types of data
		Application of appropriate methods to solve business problems
		Multiple Linear Regression Review
		Difference - in - Differences Modelling
		Matching Models
		Demand Estimation
		Sample Selection
Programmatic or professional understanding of communicating results, especially in terms of data visualization and data storytelling.	Communication	Translate data and analyses into a narrative that provides context for your message
		Create informative, clutter-free data visualizations to support your message
		Explain data and analyses in ways that are clearly understood by receivers

		Provide concise explanations that quickly get to the point without losing important context or content
		Make persuasive recommendations that convince a variety of business receivers to adopt a particular belief or take a course of action
		Present yourself professionally in diverse business communication contexts (e.g., presentations, group discussions, informal interactions, etc.)

3. For each learning outcomes, provide direct indicators (and indirect, where possible) of achievement of the outcome, target(s) for the outcome, and frequency of data collection.

Targets of 80% or more being rated on average as good or excellent will be used. Data will be collected once per year for all program goals. Indicators will be exams, quizzes, tests, papers, dashboards, and presentations.

4. Course Delivery Methods.

Please answer the following:

a) Will this be a 100% distance learning program? Yes ☒   No ☐
It will be available in a 100% distance learning format

b) Will this program utilize alternative learning formats (e.g. distance learning, technology-enhanced instruction, evening/weekend classes, accelerated courses)?   Yes ☐   No ☐

If yes, please check all that apply below.

☑ Distance Learning

☐ Courses that combine various modes of interaction, such as face-to-face, videoconferencing, audio-conferencing, mail, telephone, fax, e-mail, interactive television, or World Wide Web

☑ Technology-enhanced instruction

☑ Evening/weekend/early morning classes

☐ Accelerated courses

☐ Instruction at nontraditional locations, such as employer worksite

☐ Courses with multiple entry, exit, and reentry points

☐ Courses with "rolling" entrance and completion times, based on self-pacing

☐   Modularized courses

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5. Is there a specialized accrediting agency related to this program? Yes ☐   No ☒
   a. If yes, please identify the agency.
   b. If yes, will the program seek accreditation?

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6. Describe the library resources available to support this program.

Please also submit a letter of support from the UofL Libraries.

Access to the qualitative and quantitative library resources must be appropriate for the proposed program and should meet recognized standards for study at a particular level or in a particular field where such standards are available.

No additional specialized library resources are required for the Managerial Analytics certificate program as the library already possesses sufficient resources to support the extant Master of Science in Business Analytics degree program.

C. Program Demand/Unnecessary Duplication

1. Provide the projected enrollment and graduation numbers for the first five years.

In addition to the 20 net new students we expect to enroll each year, we expect about 20% of enrolled MBA students in the full-time and professional MBA programs to select the Managerial Analytics certificate as their elective suite. If this proportion holds for the online MBA program, we could expect an additional 30 non-revenue generating MBA graduates per year.

Academic Year	Degrees Conferred	Headcount Enrollment (Spring term)
2020-2021	20	0 (initial year enrollment will occur in spring 2021 semester)
2021-2022	20	20
2022-2023	20	20
2023-2024	20	20
2024-2025	20	20

2. Indicate any efforts to address student educational and workforce needs or to maximize student success, for both traditional and non-traditional students.

Include any data on student demand; career opportunities at the regional, state, and national levels; and any changes or trends in the discipline(s) that necessitate a new program.

Growth in data science employment positions is significant. With respect to a closely related program, student demand for the College of Business seated Master of Science in Business Analytics degree program is significant and expected to increase. The initial cohort intake in the fall 2018 semester consisted of 48 students, followed by the fall 2019 cohort with an intake of 70 students. We anticipate 100+ students in the third 2020 intake. The demand is driven by well-founded student perceptions of employer demand. A 2017 Forbes article (https://www.forbes.com/sites/louiscolumbus/2017/12/11/linkedins-fastest-growing-jobs-today-are-in-data-science-machine-learning/#2d8bfd5151bd) reported that LinkedIn's fastest growing job category was in data science. A 2017 IBM consulting report (https://www.ibm.com/downloads/cas/3RL3VXGA) stated that "demand for a new breed of professionals skilled in data, analytics, machine learning, and artificial intelligence requires a requisite response from both higher education and workforce development." The article predicted significant and sustained multi-year growth in the data science employment field. The University of Louisville possesses no generalized, managerial analytics graduate certificate and we are similarly not aware of any other certificates in the Commonwealth of Kentucky.

3. Specify/highlight any distinctive qualities of the proposed program.

The 12 credit hour certificate may be completed as a stand-alone online program or may be undertaken completely online as part of an online MBA or mostly online in a seated MBA program.

4. Does the proposed program serve a different student population (e.g., students in a different geographic area, non-traditional students, etc.) from existing programs?
If yes, please explain.

The ability of students to complete the certificate in a 100% online format will expand the geographic reach of the College of Business and provide access to new geographic markets not currently served.

5. Will this program replace or enhance any existing program(s) or tracks, concentrations, or specializations within an existing program?   Yes ☒   No ☐
If so, please specify.

The College of Business Professional and Full-Time MBA degree programs typically offer between 6 to 9 credit hours of analytics courses as electives. These courses as a set have no official UofL designation. The creation of a graduate certificate will formalize the courses into a recognizable credential for existing MBA students. This will clearly enhance the College of Business's MBA degree program by providing an additional credential to MBA students who complete this optional certificate.

Should students enroll in the certificate only option later decided to pursue a UofL MBA, will have all 12 credit hours applied toward their MBA requirements and have tuition paid for the certificate applied against the MBA program fee.

The Master of Science in Business Analytics (MSBA) degree program is a 30 credit hour degree for individuals who desire to become data scientists within a business discipline: e.g., finance, accounting, marketing. In addition, the College of Business MSBA business program looks to place about 80% of students into well paid internships during the one year program. The program is therefore design to train data scientists who are then prepared to enter the workforce.

The Managerial Analytics certificate is primarily designed for two markets. The first is MBA students who want to gain knowledge of the rapidly developing, highly evolving, high demand and relatively new business discipline of analytics. MBA students are not being trained to be data scientists, but rather are being trained managerially in a new and major business discipline. Most of our MBA students already work in business and many desire to be trained in how to design and interpret analytics projects.

The second is certificate only students who may already have a graduate degree. An admission requirement is that they possess an undergraduate degree. The applicant to the certificate program only should be quite different from the MSBA applicant. The MSBA applicant wants to become a data scientist. It is anticipated that the Managerial Analytics certificate applicant wants to learn how to interpret and understand the field as a supplement to their current work experience and practice.

6. How will the program support or be supported by other programs and/or units within the institution? Please also describe potential for collaboration with other programs within the institution.

The College of Business MBA programs will count all certificate courses toward the MBA degree. Of the 12 credit hours within the Managerial Analytics Certificate program: (1) three credit hours are required (or core) in the MBA program; and (2) the remaining nine credit hours will be taken as MBA elective credit hours.

7. Describe the proposed program's relationship with programs at other institutions or external organizations (if applicable).

There is no planned relationship with programs at other institutions.

D. Cost

1. Will this program require additional resources?   Yes ☒   No ☐

If so, please provide a brief summary of new or additional resources that will be needed to implement this program over the next five years. Document the expected cost/expenditures in the table below.

The program will require additional administrative and marketing support resources. It is expected that the program will require a director (with a $10,000 per year stipend) and a marketing budget of $10,000 per year. With the exception of one 1.5 credit hour course, all courses are already being taught in a seated format in out MBA programs: this is the only marginal instructional cost as courses are converted from seated to online: (1) ANLY 630 Blockchain is the only new course and will move straight to an online only section: (2) MBA 602 Decision Analysis and MBA 651 Introduction to Business Analytics are seated courses in the Professional and Full-time MBA programs and will remain such. The two 1.5 credit hour courses are prerequisites into the remaining 9.0 online credit hours of the certificate. Fully online certificate students will enroll in the three-credit hour ANLY 631 Introduction to Statistics and Data Analytics course. Therefore, the additional instructional expense for the program is limited to one 1.5 credit hour course.

The table below shows how the certificate will generate additional revenue while incurring only a negligible increase in instructional costs. As courses become available online, the seated sections will no longer be offered.

Certificate-Only students	MBA+Certificate students
Net new marginal revenue	Revenue flows to MBA financial bucket as students are already paying MBA program charges
Enrolled in tuition generating section	Enrolled in "no-bill" section
Extremely limited net new instructional costs as college-wide seated section courses are already being paid for and will be deleted when certificate courses go online.	

2. Complete the SACS Faculty Roster Form found at the link below and submit it with this proposal.

Found at:
http://louisville.edu/oapa/new-academic-program-approval-page/new-academic-program-approval

Also submit a copy of the program director's CV.

3. Are new or additional faculty needed?   Yes ☐   No ☒

a) If yes, please explain, indicating the number and role of each new faculty member and whether they will be part-time or full-time. Specify if graduate assistants are included in the additional faculty resources needed.

b) If new faculty are needed, please provide a plan to ensure that appropriate faculty resources are available, either within the institution or externally, to support the program.

c) What is the projected faculty/student ratio for the program?

No additional faculty will be needed for the certificate program as all but one 1.5 credit hour course is already being taught. The new course will be taught by a current full-time faculty member employed by the College of Business, The anticipated faculty / student ratio is expected one faculty member for every 15 to 20 students. This is the expected class size.

4. Will this program impact existing programs and/or organizational units within UofL?
    Yes ☒   No ☐

If so, please describe the impact.
(examples: reallocation of resources, faculty or staff reassigned, changes to other programs and/or course offerings, reduction or increase in students served, any other possible impact) .

This program will impact the online, full-time, and professional MBA degree programs. Managerial Analytics certificate courses will count as electives toward completion of these degree programs.

The certificate will thus enhance the market standing and value proposition of extant MBA degree programs.

A point of clarification: Students demand for MSBA degrees has been rising in general over the past decade. Demand for MBA graduates has been flat over the past 10 years. MSBA students may enroll in the Managerial Analytics certificate program, but these courses will not toward the MSBA degree as the rigor level is below what we would expect of MSBA courses. The Managerial Analytics certificate courses will count toward the UofL MBA degree as the certificate courses are designed for students with a bachelor degree in any field. Our MBA degree is similarly designed for those possessing an undergraduate degree in any field. Within our MBA programs, the current analytics electives courses are extremely popular. In the currently underway full-time MBA program elective cycle, three of 14 electives are analytics-based (or 17%), yet they account for 27% of instructional credit hours. In other words, analytics electives in our full time MBA program are extremely popular. A stand-alone managerial analytics badge will enhance the college and UofL in four fashions: (1) attract additional students to the UofL MBA program because of the certificate (including attendant revenue); (2) provide a higher-level of analytics training for current MBA students which will better position them students in the job market; (3) generate marginal revenue at low cost for the College of Business and UofL; and (4) provide an entry way into our MBA program: i.e., students may complete the certificate first and then enter the MBA program at a afterwards. In addition, these program advantages clearly align with the component of UofL mission concerning with educating and preparing engaged citizens and leaders.

The performance of the Franchise Management certificate is less than expected in terms of enrollment. Program and instructional quality are high. The metric we use in assessing evaluating performance all programs including the Managerial Analytics certificate is enrollment. Regardless of program enrollment, the College of Business continuously assesses and evaluates marketing, messaging, recruiting, budgets, and product quality. These same practices will be applied to Managerial Analytics certificate. We provide these details in the proposal.

Analytics is becoming a massive, rapidly growing field with applications across multiple disciplines. The current pandemic clearly illustrates the need for individuals trained in analytics with deep background knowledge of epidemiology. Hospitals can use specific applications to predict disease transmission, likelihoods of individuals acquiring specific chronic illnesses, and disease diagnosis. Examples of engineering analytics include advanced production scheduling and sequencing, machine and equipment maintenance and downtime scheduling, power system performance, warehouse technology optimization, and transportation scheduling, to name a few. In contrast, business applications include those in finance and accounting (e.g., fraud detection, forecasting), marketing (e.g., price optimization, customer acquisition, product design, customer sentiment analysis), management including a range of human resource decisions, operations management (e.g. inventory planning, sourcing), and computer information systems (e.g., cybersecurity, web page analysis). The growth and range of applications of analytics strongly suggests competition among colleges is limited as the baseline knowledge in different disciplines differs substantively. Product differentiation of the health care, engineering, and business programs is extremely high and thus cannibalization rates should be quite low.

- Complete the New Program Budget Spreadsheet.

Found at:
http://louisville.edu/oapa/new-academic-program-approval-page/new-academic-program-approval

Notes for completing the Budget Spreadsheet:
- Provide an estimate of the level of new and existing resources that will be required to implement and sustain the program.
- Any existing resources reallocated to support this new offering should be estimated as an "internal reallocation" in both the Funding Sources and Expenses sections of the budget.
- Any new resources for which the unit/department plans to allocate funding should be listed as "allocation" in both the Funding Sources and Expenses sections of the budget.
- The program proposal is to be developed without the expectation of tuition-sharing or recovery agreements with the Provost. This approach ensures that the "cost" of operating the program is somewhat reflective of reality.
- For every place you add numbers (in both the Funding Sources and Expenses spreadsheet) provide a written explanation for the numbers, including how they were calculated. The CPE system won't let us submit the proposal without explanations for the budget numbers.
- The budget for the proposed program is to be in alignment with the latest budget assumptions (provided below as of 10/7/19) from the Budget Model Workgroup.

Undergraduate*
70% (net of mandatory student fees) of resident per credit hour tuition rate (i.e., the listed rate on the bursar's website) charged to undergraduate students is allocated to the academic unit where the instruction takes place. Every credit hour is treated the same under the model.

Graduate/Professional*
Graduate: 75% (net of mandatory student fees) of tuition review revenue allocated according to a student's home academic program.
Professional: 85% of tuition revenues generated from professional degree (law, dentistry, medicine), doctoral, and DNP programs allocated to the student's home academic program. For purposes of the budget model, doctoral programs fall in the Professional category.

*These definitions of the Budget Model are as of 10/7/19 and are subject to change.

Note that there are three tabs to the Budget spreadsheet.

Funding Sources tab:
- Indicate funding to be supplied by the unit (include direct funding & In-kind support):
- Internal allocation and reallocation are those estimated dollars needed to fund the start-up and support the new academic program – typically defined as faculty, administrative/staff, and operational expenses.
- When calculating funding, consider the impact on current faculty workloads.
- Include the expected tuition revenue generated by anticipated student enrollment.

- If the program will use existing faculty or other existing resources, the amount of funding represented by those resources are to be listed in the Funding Sources table as reallocation of funds.
- If reallocation of "existing" funds are included in the Funding spreadsheet, the numbers should also be reflected in the Expenses spreadsheet.
- If the unit has allocated funds for any new expenses in the Funding Sources spreadsheet, the numbers should also be added to the Expenses spreadsheet.

Expenses tab:
- You do not have to estimate classroom space unless you believe that existing space is not sufficient to support the academic program.
- Any expenses identified as "existing" funds in the expenses spreadsheet should also be added to the Funding Sources spreadsheet as either internal reallocation or internal allocation.

Funding Source/Expenses Combined tab:
- This spreadsheet will pre-populate based upon the numbers entered into the Funding Sources and Expenses spreadsheets. The goal is to have more funding than expenses.

Appendix A
Program Curriculum

<table>
<tr><td colspan="11">7. In the table below, provide the program curriculum and any options; indicate total number of credit hours required for degree completion.
    • Include full course names and course descriptions.
    • Where they exist you should report actual course numbers, titles, and descriptions in the course template. If the program has no specific course numbers required under a particular heading, provide a description of the type of course(s) required in the "course title" column and the number or range of credit hours required.
    • Provide a copy of the course syllabus for any new courses developed.</td></tr>
</table>

Prefix & Number	Course Title	Course Description	CH	Required?	New	Existing	Revised	Offered Online?
MBA 631/ ANLY 631	Introduction to Statistics and Data Analytics	This course will cover the fundamental topics and subject matter related to statistics up through multiple regression modeling. A strong emphasis will be placed on how to use statistics. This will be accomplished through student analysis of real world data sets during class periods and in the homework assignment. NOTE: MBA course for MBA + Certificate students and ANLY course for Certificate-Only students	3.0	3 credit hours from MBA 631 *or* ANLY 631; OR MBA 602 *and* **MBA 651**		Yes		Yes
MBA 602	Decision Analysis	Data organization and presentation, descriptive statistics, common probability distributions and sampling distributions, regression and inferential statistics, such as confidence intervals and test of significance.	1.5			Yes		No
MBA 651	Introduction to Business Analytics	Much of this data are usually meaningless until they are analyzed for trends, patterns, relationships, and other useful information. Organizations are increasingly interested in employees who have the knowledge, skill, and experience in systematically analyzing a wide variety of data using advanced statistical tools to improve decision-making. This course provides a hands-on learning experience using powerful statistical tools that can be leveraged to work with structured data and generate business knowledge.	1.5			Yes		No
		Student must take 3 credit hours from the above						
		Students must take all 9 credit hours from below						

ANLY 610	Data Base	**This will be converted from a seated MBA elective course to an online ANLY course during the fall 2020**: The course introduces issues, principles, and technologies used in managing organizational data. It covers concepts and skills for developing, accessing, and administering data related technologies with a strong focus in developing relational data models, relational databases, and formulating and executing complex queries. It also discusses the role of data management technologies and practices in an organizational setting and how such technologies and practices affect business strategy, business processes, and organizational structure. This course has a strong hands-on component. The course will make extensive use of a leading relational database management software and structured query language (SQL).	1.5	Yes		Yes		Yes
ANLY 615	Artificial Intelligence	**This will be converted from a seated MBA elective course to an online ANLY course during the fall 2020**: *Students enrolled in this course must have successfully completed Analytics: Data Management I.* This course focuses on analytical databases. Analytical databases are databases designed and used for decision support/business intelligence and analytical purposes. The course will provide an overview of business intelligence, including architecture, tools, and methodologies. The course provides a heavy hands-on exposure to topics such as data warehouse design, implementation, and use. The course will utilize your skills and knowledge acquired in MBA 680: Data Management I to create and leverage database models for analytics.	1.5	Yes		Yes		Yes
ANLY 620	Advanced Business Analytics	**This will be converted from a seated MBA elective course to an online ANLY course during the fall 2020**: The volume of data generated every day continues to grow exponentially. Being able to mine the available data for information is now a fundamental skill sought by organizations. This course challenges and teaches students how to use powerful statistical tools (e.g., SAS and SPSS) to handle data that come in a variety of forms and sizes in more complex, less structured business situations. Students will participate in extensive hands-on work solving realistic business problems. This course may guide students with handling advanced regression analysis that deals with real-life models and interaction variables, time series analysis, and topics such as path modeling. After taking this course, students should: (1) Approach business	1.5	Yes		Yes		Yes

Course	Title	Description	Credits					
		problems data analytically; (2) Think systematically whether and how data can help make better-informed decisions; (3) Be able to interact competently with business analytical tools; and (4) Have a had hands-on experience mining data. A review of necessary statistical concepts will be provided as needed. Other than prerequisite MBA 680 (Business Analytics I), no prior or technical knowledge is required for this course.						
ANLY 625	Spreadsheet Modeling for Analytics	**This will be converted from a seated MBA elective to an online ANLY course during the fall 2020**: This course introduces decision-support modeling using spreadsheets, including what-if analysis, goal-seeking, one and two-way data tables, and tools to solve optimization problems. The course explores a library of functions to manipulate data, visual presentation of data, and data organization skills. Students in this course should have an understanding of cell referencing, file manipulation, importing/exporting data, and the basic time-value of money financial concepts. Students will demonstrate mastery of the material through hands-on projects and skills assessments. The primary tool used in the course is Microsoft Excel.	1.5	Yes		Yes		Yes
ANLY 630	Blockchain	The purpose of this course is to explore Blockchain concepts and how to apply them in a wide range of real business scenarios and explore unique, challenge-based business scenarios using design-thinking methodology.	1.5	Yes	Yes			Yes
ANLY 635	Storytelling with Data	**This will be converted from a seated MBA elective to an online ANLY course during the fall 2020**: This course is a data visualization and business presentations course specifically designed for professionals in the field of business analytics. Throughout the course, you will develop an ability to organize, visualize, and present data driven messages that are professional, clear, concise, and persuasive. You will enhance your ability to communicate with and about data in multiple business and professional contexts: formal individual presentations, team-based presentations, and informal one-on-one and small group interactions.	1.5	Yes		Yes		Yes
TOTAL CREDITS REQUIRED			**12**					

Faculty Roster Form
Qualifications of Full-Time and Part-Time Faculty

Name of Institution: University of Louisville

Name of Primary Department, Academic Program, or Discipline: Computer Information Systems

Academic Term(s) Included Fall, Spring   Date Form Completed: 1-18-2020

1	2	3	4
NAME (F, P)	COURSES TAUGHT Including Term, Course Number & Title, Credit Hours	ACADEMIC DEGREES& COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed	OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught
Jian Guan (F)	MBA 680 Analytics: Data Management I; MBA 680 Analytics: Data Management II; MSBA 630 Data Management; MSBA 645 Data Mining; MSBA 690 Analytics Capstone (multiple semesters)	Ph.D. in Computer Science and Engineering (1992), University of Louisville; Master of Science in Computer Science (1989), University of Louisville.	Twenty + years' experience with instruction of data base management and data mining. Current director of the College of Business Master of Science in Business Analytics degree program
Sandeep Goyal (F)	CIS 310 Database Design; CIS 444 Data Analytics; MSBA 620 Data Analytics I; MBA 680 Advanced Business Analytics (multiple semesters)	Ph.D. in Information Systems (2010) University of Arkansas.	Ten + years of experience with instruction of multiple computer information systems and statistics courses.
Thomas Lambert (F)	BSTA Business Statistics; MBA 602 Decision Analysis; MSBA 635 Data Analytics II (multiple semesters)	Ph.D. in Urban and Public Affairs Economics (1996) University of Louisville	Fifteen + years of instructional experience in statistics, government studies, public policy, economics, and management.

Ty Handy (P)	Scheduled to teach MBA 602 Decision Analysis (1.5 credit hours); MBA 651 Introduction to Business Analytics (1.65 credit hours); Starting spring 2020 semester.	Ed.D. Higher Education Administration (1991 University of Memphis; MBA in Accounting and Finance (1986) Drexel University	Thirty + years of graduate and undergraduate teaching experience in Management, Finance, Statistics, Leadership, and Ethics and various institutions
Warren D. McIntosh (F)	CIS 205 Information Systems Organization; CIS 305 Data Analysis Decision (multiple semesters): MBA 680 Advanced Excel (planned)	Master of Science in Human Resource Education (2010) University of Louisville	Ten + years' experience with instruction of Computer Information Systems courses. Multi-year experience with online course development.
Tian Tang (F)	MBA 616 612, 616, 618 Finance I, II, and III (multiple semesters); FIN 301 Corporate Finance (multiple semesters)	Ph.D. in Finance (2008) University of Alabama	Ten + years of instructional experience in the area of finance.
Abigail Koenig (F)	BUS 301 Business Communication multiple semesters); MSBA 625 Storytelling with Data (planned for spring 2020)	Ph.D. in Technical Communications and Rhetoric (2019) Texas Tech University	Experience teaching electronic communication

F, P: Full-time or Part-time;

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EDUCATION
- Ph.D. in Marketing; Minors in Logistics and Advertising; Michigan State University (1989).
- Master of Business Administration; Major in Management Science; McGill University, Montreal (1986).
- Bachelor of Commerce; Major in Quantitative Methods; Concordia University, Montreal (1981).

ACADEMIC POSTINGS
- Professor and Challenge for Excellence Chair in Supply Chain Management; College of Business; University of Louisville (USA): 2001-2010, 2012 (ongoing).
- Professor: Joint appointment at EBS University of Economics and Law (Germany) and Graduate School of Management, St. Petersburg University (Russia); 2010-2012.
- Assistant/Associate Professor: College of Business; Oklahoma State University (USA): 1990-2001.

ADMINISTRATION AND SERVICE (Major)
- Associate Dean for Graduate Programs, College of Business, University of Louisville, 2014-2019.
- Associate Dean for Programs, College of Business, University of Louisville, 2019 - ongoing
- Marketing Department Head, College of Business, University of Louisville, 2012-2014.
- Academic Director of MBA Programs, College of Business, University of Louisville, 2013-2014.
- Head of the Deutsche Bahn and Russian Railways Center for International Logistics and Supply Chain Management (CIL), St. Petersburg University (Russia), 2010-2012.
- Director of Programs (2004-2007), Associate Director (2007-2010), Logistics & Distribution Institute; University of Louisville.
- Board Member (2005-2010), Executive Board Member (2002-2005): Louisville Logistics Network.
- Marketing Ph.D. Program Coordinator, 1995-1999, Oklahoma State University.

INSTRUCTION
- Ph.D.: Theory & Philosophy of Science; Linear Modeling; Structural Equation Modeling; Supply Chain Management.
- MBA: Statistics; Marketing Management; Supply Chain Management; Operations Management; International Logistics.
- Undergraduate: Marketing Principles; Market Research; Logistics; Marketing Management; Statistics.
- Executive Education Modules: Logistics Service; International Logistics; Inventory Management; Global Sourcing.

REFEREED JOURNAL ARTICLES
1. K. Bogatyreva, G. Shirokova, W. Wales, & R. Germain, "Foreign Motivation? International Managerial Exposure and Regional Involvement Effects on Firms' Entrepreneurial Orientation," *European Journal of International Management*, (forthcoming).
2. A. Omar, B. Davis-Sramek, R. Germain (2019), "Leveraging Supply Chain Orientation for Global Supplier Responsiveness: The Impact of Institutional Distance" *International Journal of Logistics Management*, 30 (1), 39-56.

3. X. Lin, R. Germain, and K. Krotov (2019), "Performance Effects of Technology Dynamism: Private vs. State Enterprises in Russia," *Journal of East-West Business*, 9 (6), 1-25.
4. B. Davis-Sramek, B. Fugate, J. Miller, R. Germain, A. Izyumov & K. Krotov, Konstantin (2017), "Understanding the Present by Examining the Past: Imprinting Effects On Supply Chain Outsourcing in a Transition Economy," *Journal of Supply Chain Management*, 53 (1), 65-86.
5. B. Davis-Sramek, K. Krotov & R. Germain (2016), "Predicting Technology Integration and Performance in Transition Economies: Insights from Russia," *International Journal of Physical Distribution and Logistics Management*, 46 (2), 128-152.
6. B. Davis-Sramek, R. Germain & K. Krotov (2015), "Examining the Process R&D Investment-Performance Chain in Supply Chain Operations: The Effect of Centralization," *International Journal of Production Economics*, 167 (September), 246-256.
7. D. Cumberland, W. Meek, & R. Germain (2015), "Entrepreneurial Self-Efficacy and Firm Performance in Hostile Environments: Evidence from the Franchising Context," *Journal of Developmental Entrepreneurship*, 20 (1), 1-19.
8. J. Hartmann & R. Germain (2015), "Understanding the Relationships of Integration Capabilities, Ecological Product Design, and Manufacturing Performance," *Journal of Cleaner Production*, 92 (1), 196-205.
9. J. Hartmann, A. Grobecker, & R. Germain (2015), "Antecedents of Environmentally Conscious Operations in Transitioning Economies: Insights from Russia," *International Journal of Operations and Production Management*, 35 (6), 843-865.
10. B. Davis-Sramek, B. Fugate, C. Autry, R. Germain (2012), "Does Knowledge Management Facilitate Logistics-Based Differentiation? The Effect of Global Manufacturing Reach," *International Journal of Production Econom*ics, 139 (2), 496-509.
11. R. Germain, B. Davis-Sramek, S. Lonial & P.S. Raju (2011), "The Impact of Relational Supplier Exchange on Financial Performance: A Study of the Hospital Sector," *Journal of Business Logistics*, 43 (3), 240-53.
12. R. Germain, K. Krotov & Y. Fedotov (2011), "Outsourcing and Vertical Integration: Research Propositions from an Organizational Perspective," *Russian Management Journal*, 9 (2), 93-108.
13. L. Birou, R. Germain & W. Christensen (2011), "Applied Logistics Knowledge and its Impact on Financial Performance," *International Journal of Operations & Production Management,* 31 (8), 816-34.
14. W. Meek, M. Baucus, B. Davis, & R. Germain (2011), "Commitment in Franchising: The Role of Collaborative Communication and a Franchisee's Propensity to Leave," *Entrepreneurship Theory & Practice*, 35 (3), 559-81.
15. B. Davis-Sramek, R. Germain & T. Stank (2010), "The Impact of Order Fulfillment Service on Retailer Merchandising Decisions in the Consumer Durables Industry," *Journal of Business Logistics*, 31 (2), 215-30.
16. B. Davis-Sramek, R. Germain & K. Iyer (2010), "Supply Chain Technology: The Role of Environment in Predicting Performance," *Journal of the Academy of Marketing Science*, 38 (Spring), 42-55.
17. K. Iyer, R. Germain & C. Claycomb (2009), "B2B E-commerce Supply Chain Integration and Performance: A Contingency Fit Perspective on the Role of Environment," *Information & Management*, 46 (August), 313-22.
18. G. Buttermann, R. Germain & K. Iyer (2008), "Contingency Theory "Fit" as Gestalt: An Application to Supply Chain Management," *Transportation Research Part E: Logistics and Transportation Review*, 44 (November), 955-69.
19. R. Germain, C. Dröge & C. Claycomb (2008), "Supply Chain Variability, Organizational Structure and Performance: The Moderating Effect of Demand Unpredictability," *Journal of Operations*

Management, 26 (September), 557-570.

20. O. Nasraoui, M. Soliman, E. Saka, A. Badia, R. Germain (2008), "A Web Usage Mining Framework for Mining Evolving User Profiles in Dynamic Websites," *IEEE Transactions on Knowledge and Data Engineering*, 20 (February), 202-15.

21. N. Spears & R. Germain (2007), "A Note on Green Sentiments and the Human-Animal Relationship in Print Advertising During the 20TH Century," *Journal of Current Issues and Research in Advertising*, 29 (Fall), 53-62.

22. N. Spears & R. Germain (2007), "1900-2000 in Review: The Shifting Role and Face of Animals in Print Advertisements in the Twentieth Century," *Journal of Advertising*, 36 (Fall), 19-34.

23. W. Christensen, R. Germain & L.Birou (2007), "Variance vs. Average: Supply Chain Lead-time as a Predictor of Financial Performance," *Supply Chain Management: An International Journal*, 12 (5), 349-57.

24. K. Iyer, R. Germain & G. Frankwick (2006), "Supply Chain Analytic Capability: Environment and Performance," *International Journal of Integrated Supply Management*, 3 (3), 302-20.

25. R. Germain & K. Iyer (2006), "The Interaction of Internal and Downstream Integration and its Association with Performance," *Journal of Business Logistics*, 27 (2), 29-52.

26. C. Claycomb, C. Dröge & R. Germain (2005), "Applied Customer Knowledge in a Manufacturing Environment: Flexibility for Industrial Firms," *Industrial Marketing Management*, 34 (July), 629-40.

27. W. Christensen, R. Germain & L. Birou (2005), "Build-to-Order and Just-in-Time as Predictors of Applied Supply Chain Knowledge and Market Performance," *Journal of Operations Management*, 23 (July), 470-81.

28. C. Claycomb, K. Iyer & R. Germain (2005), "Predicting the Level of B2B E-commerce in Industrial Organizations," *Industrial Marketing Management*, 34 (April), 221-34.

29. K. Iyer, R. Germain & G. Frankwick (2004), "Supply Chain B2B E-Commerce and Time-Based Delivery Performance," *International Journal of Physical Distribution & Logistics Management*, 34 (8), 645-61.

30. X. Lin & R. Germain (2004), "Antecedents to Customer Involvement in Product Development: Comparing U.S. and Chinese Firms," *European Management Journal*, 22 (2), 244-55.

31. X. Lin & R. Germain (2004), "Customer Orientation in Chinese Industrial Firms and Global Marketing Implications," *Journal of Global Marketing*, 17 (1), 93-115.

32. C. Dröge, C. Claycomb & R. Germain (2003), "Does Knowledge Mediate the Effect of Context on Performance? Some Initial Evidence," *Decision Sciences*, 34 (3), 541-69.

33. X. Lin & R. Germain (2003), "Effect of Context, Customer Product Knowledge, and Organizational Structure on Performance: Lessons from Chinese State-Owned Enterprises," *Strategic Management Journal*, 24 (11), 1135-51.

34. X. Lin & R. Germain (2003), "Market Responsive Product Quality Orientation and its Performance Implications," *Journal of International Marketing*, 11, (2), 59-77.

35. C. Claycomb, C. Dröge & R. Germain (2002), "Applied Product Knowledge and Performance: Moderating Effects of Uncertainty," *International Journal of Quality & Reliability Management*, 19 (6), 649-71.

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37. R. Germain, C. Dröge & W. Christensen (2001), "The Mediating Role of Knowledge in the Relationship of Context with Performance," *Journal of Operations Management*, 19 (July). 453-69.

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49. R. Germain & C. Dröge (1998) "The Context, Organizational Design, and Performance of JIT Buying versus Non-JIT Buying Firms," *Journal of Supply Chain Management*, 34 (Spring), 12-18.

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51. R. Germain & C. Dröge (1997), "The Effect of JIT Purchasing Relationships on Organizational Design, Purchasing Department Configuration, and Firm Performance," *Industrial Marketing Management*, 26 (March), 115-25.

52. R. Germain, C. Dröge & N. E. Spears (1996), "The Implications of Just-in-Time for Logistics Organization Management and Performance," *Journal of Business Logistics*, 17(2), 19-34.

53. R. Germain (1996), "The Role of Context and Structure in Radical and Incremental Logistics Innovation Adoption," *Journal of Business Research*, 35 (February), 117-27.

54. P. Daugherty, R. Germain & C. Dröge (1995), "Predicting EDI Technology Adoption in Logistics Management: The Influence of Context and Structure," *Logistics & Transportation Review*, 31 (December), 309-24.

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56. S. C. Hollander & R. Germain (1995), "A Note on the History of the Marketing of Higher Education," *Journal of Non-Profit & Public Sector Marketing*, 3 (2), 63-80.

57. R. Germain, C. Dröge & P. Daugherty (1994), "The Effect of Just-in-Time Selling on Organizational Structure: An Empirical Investigation," *Journal of Marketing Research*, 31 (November), 471-83.

58. R. Germain, C. Dröge & P. Daugherty (1994), "A Cost and Impact Typology of Logistics Technology Adoption and their Effect on Organizational Practice," *Journal of Business Logistic*s, 15 (2), 227-48.
59. P. Daugherty, C. Dröge & R. Germain (1994), "Logistical Benchmarking: An Empirical Investigation of Manufacturing Firms," *The International Journal of Logistics Management*, 5 (1), 9-18.
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62. C. Dröge & R. Germain (1991), "Evaluating Logistics Management Information Systems," *International Journal of Physical Distribution & Logistics Management*, 21 (7), 22-27.
63. C. Dröge, R. Germain & J. R. Stock (1991), "Dimensions Underlying Retail Logistics and Their Relation-ship to Supplier Evaluation Criteria," *The International Journal of Logistics Management*, 2 (1), 19-25.
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65. C. Dröge, R. Germain & D. Halstead (1990), "A Note on Marketing and the Corporate Annual Report: 1930-1950," *Journal of the Academy of Marketing Science*, 18 (Fall), 355-64.
66. R. Germain & B. Cooper (1989), "How A Customer Service Mission Statement Affects Company Performance," *Industrial Marketing Management*, 19 (February), 47-54.
67. C. Dröge & R. Germain (1989), "The Impact of the Centralized Structuring of Logistics Activities on Span of Control, Formalization, and Performance," *Journal of the Academy of Marketing Science*, 17 (Winter), 83-89.
68. R. Germain (1989), "Output Standardisation and Logistical Strategy, Structure, and Performance," *International Journal of Physical Distribution & Materials Management*, 19 (1), 20-29.

BOOKS
1. R. Germain (1996), *Dollars through the Doors: A Pre-1930 History of Bank Marketing in America*, Westport, CT: Greenwood Publishing Group, pp.224.
2. S.C. Hollander & R. Germain (1992), *Was There a Pepsi Generation Before Pepsi Discovered It? Youth-Based Segmentation in Marketing*, Chicago, IL: American Marketing Association, pp.160.
3. D.J. Bowersox, P. Daugherty, C. Dröge, R. Germain & D. S. Rogers (1992), *Logistical Excellence: It's Not Business as Usua*l, Burlington, MA: Digital Press, pp.246.
   Reprint: *Eccellenza Logistica: il nuovo modo di fare business*, (1993) Milan: Italy, FrancoAngeli.

VOLUME CONTRIBUTIONS
1. R. Germain & W. Whitworth (2008), "Customer Service: A Logistics Perspective," in *Engineering Logistics Handbook*, G.D. Taylor (ed.), Boca Raton, FL; CRC Press, 6.1-10.
2. R. Germain & X. Lin (2003), "A Supply Chain and Organizational Approach to Chinese State-Owned Enterprises," in *Chinese Economic Transition & International Marketing*, I. Alon (ed.), Westport, CT: Praeger, 264-79.
3. R. Germain (1997), "An Historical Analysis of Marketing By Service Organizations: The Case of Pre-1930 Banking in America," in *Advances in Services Marketing & Management: Research & Practice, Vol. 6*, T. A. Swartz, D. E. Bowen & D. Iacobucci (eds.), Greenwich, CT: JAI Press, 101-23.
4. R. Germain (1994), "Statistical Methods and Market Research: The Early Twentieth Century," in *Research in Marketing: Explorations in the History of Marketing (Supplement 6)*, R. Fullerton (ed.) Greenwich, CT: JAI Press, 87-101.

5. Germain (1993), "The Adoption of Statistical Methods in Market Research: 1915-1937," *The International Library of Critical Writings in Business History: Volume 1*, S.C. Hollander and K. M. Rassuli, eds., London: Edward Elgar Publishers Limited, 435-48.
   - *Reprinted as*: R. Germain (1989) "The Adoption of Statistical Methods in Market Research: 1915-1937," *Proceedings of the 4th Conference on Historical Research in Marketing & Marketing Thought*, East Lansing, MI: Michigan State University, 317-30.

CONFERENCE PROCEEDINGS / ABSTRACTS/ PRESENTATIONS (Sample)
1. K. Bogatyreva, G. Shirokova, W. Wales, & R. Germain (2019), "Exploring Antecedents of Entrepreneurial Orientation: An International Perspective," *Academy of Management Proceedings*, (1), 10108.
2. A. Grobecker, J. Wolf, & R. Germain (2013), "Organizational Antecedents of Sustainability: Lessons from Russia," *Capitalism in Question, Academy of Management Annual Conference*, 363.
3. R. Germain, K. Krotov, & X. Lin (2012), "Environmental Response Options and Performance," *Logistics: Current Development Trends*, St. Petersburg, Russia, 412-14.
4. R. Germain, G. Buttermann & K. Iyer (2008), "Electronic Supply Chain Integration: The Moderating Effect of Cooperative Norms," *Communications of the Systematics and Informatics World Network*, Vol. 3 (June), 39-45.
5. G. Buttermann, R. Germain & K. Iyer (2007), "Contingency Theory "Fit" as Gestalt: An Application to Supply Chain Management," *Academy of Management 2007 Annual Meeting*.
6. G. Buttermann, R. Germain & K. Iyer (2007), "Performance through Integration: Transaction Cost Economics and the Supply Chain," Academy *of Management 2007 Annual Meeting*.
7. X. Lin & R. Germain (2007), "Supply Chain Knowledge in U.S. versus Chinese Firms," Academy *of Management 2007 Annual Meeting*.
8. X. Lin & R. Germain (2004), "The Impact of FDI on Performance in Chinese State Enterprises: The Role of Management Decentralization", Inaugural Conference of the International Association for Chinese Management Research (IACMR), Beijing, on CD.
9. R. Germain & X. Lin (2003) "Foreign Direct Investment, Organizational Structure, and Firm Size: Performance Effect in Chinese State Enterprises," *Administrative Sciences Association of Canada 2003 Conference*, Halifax.
10. R. Germain (2003) "On the History of Bank Marketing," The Romance of Marketing History: Proceedings of the 11th Conference on Historical Analysis & Research in Marketing, East Lansing, MI, Michigan State University, 295.
11. R. Germain (2002), "A Historical Perspective to Services Marketing: Banking in North America Prior to 1930," *11th Annual AMA Frontiers in Service Marketing Conference*, Chicago, AMA, 76.
12. X. Lin & R. Germain (2001), "Market-Responsive Product Quality Orientation and its Performance Implications in Chinese State –Owned Enterprises," *American Marketing Association 2001 Summer Educators' Conference*, Chicago, 87.
13. B. Larson & R. Germain (2000), "Relational Marketing: How New Is It?" in B*usiness Research Yearbook: Global Business Perspectives*, J. Biberman & A. Alkhafaji eds., (Spring), McNaughton & Gunn, Inc., Saline, MI, V7, 55-59.
14. R. Germain, C. Dröge & C. Johnson (1998), "Senior Distribution Executive Tenure Impact on Organizational Design in Distribution," *American Marketing Association 1998 Winter Educators' Conference*, Chicago: AMA, 266-92.
15. N. Spears & R. Germain (1997), "The Transference of Ideas across Disciplines: The Case of Metaphor and Analogy," *Proceedings of the 8th Conference on Historical Research in Marketing & Marketing Thought*, East Lansing, MI: Michigan State University, 49-57.. Claycomb & R. Germain (1997),

"Organizational Learning and Performance: An Empirical Test," *American Marketing Association 1997 Winter Educators' Conference*, Chicago: AMA, 94-100.

16. N. Spears & R. Germain (1995), "A Review of the Product Life Cycle and Diffusion of Innovation: Current and Historical Perspectives," *Proceedings of the 7th Conference on Historical Research in Marketing & Marketing Thought*, East Lansing, MI: Michigan State University, 349-62.

17. C. Dröge, R. Germain & N. E. Spears (1995), "Form Postponement as a Strategic Initiative in Affecting Organizational Design," *American Marketing Association 1995 Summer Educators' Conference*, Chicago: AMA, 263-69.

18. R. Germain & W. G. Zikmund (1993), "Thirty Years of the Survey of Marketing Research: A Longitudinal Investigation," *1993 Southwest Marketing Association Conference: Advances in Marketing*, Southwest Marketing Association, Baton Rouge: LA, 141-47.

19. R. Germain (1993), "An Historical Analysis of Bank Accessibility," Pr*oceedings of the 6th Conference on Historical Research in Marketing & Marketing Thought*, East Lansing: Michigan State University, 1.

20. R. Germain, C. Dröge & P. Daugherty (1993), "An Empirical Investigation of JIT Exchange, Strategy and Organization," *American Marketing Association 1993 Summer Educators' Conference*, Chicago: AMA, 25.

21. R. Germain & D. S. Rogers (1992), "Organization and Supplier Evaluation in Merchandisers," *American Marketing Association 1992 Summer Educators' Conference*, Chicago: AMA, 447-53.

22. R. Germain (1991), "Community Advertising," *Proceedings of the 5th Conference on Historical Research in Marketing & Marketing Thought*, East Lansing: Michigan State University, 251.

23. R. Germain & C. Dröge (1990), "The Relationships among Size, Technology and Structure in Small versus Large Wholesalers," *American Marketing Association 1990 Summer Educators' Conference*, Chicago: AMA, 305.

24. C. Dröge & R. Germain (1990), "Evaluating Physical Distribution Information Systems: The Role of Information Technology, Resource Availability and Firm Characteristics," *American Marketing Association 1990 Summer Educators' Conference*, Chicago: AMA, 259.

25. C. Dröge, R. Germain & P. Daugherty (1989), "Servicing the Exchange Relationship: Organizational Configuration and Its Effects on Intra-Firm and Buyer-Seller Communications," *1989 Southern Marketing Association Conference, Southern Marketing Association*, Charleston, SC: SMA, 153-57.

26. R. Germain & P. Daugherty (1989), "The Effect of Product Diversification and Size on the Organizational Structure of Demand Servicing Activities," *American Marketing Association 1989 Summer Educators' Conference*, Chicago: AMA, 126-31.

27. S. C. Hollander & R. Germain (1989), "A Note on the History of the Marketing of Higher Education," *1989 Symposium for the Marketing of Higher Education*, Cincinnati, OH: Xavier University, 266-80.

28. R. Germain (1989), "The Adoption of Statistical Methods in Market Research: 1915-1937," *Proceedings of the 4th Conference on Historical Research in Marketing & Marketing Thought*, East Lansing, MI: Michigan State University, 317-30.

29. R. Germain (1988), "Logistical Systems and Their Relationships with Effective Logistical Product Management," *American Marketing 1988 Association Summer Educators' Conference*, Chicago: AMA, 4-8.

OTHER PUBLICATIONS

1. Instructional Software: *Business Ready Statistics* (2009): Created content for on-line software learning tool consisting of lessons, interactive practice problems, and multiple choice questions; GMAC: Graduate Management Admissions Council, Tyson's Corner VA.

2. Industry Report: Germain, Richard & Armin Guenter (2012), *Contract Logistics and Outsourcing in*

Russia: A Report by the Deutsche Bahn and Russian Railways Center for International Logistics and Supply Chain Management, Saint Petersburg, Graduate School of Management of Saint Petersburg University.

CONSULTING / CONTRACT / OTHER OUTSIDE WORK
- Graduate Management Admissions Council (GMAC, administrator of the GMAT exam); 2006; 2008-2009: two projects
    - Question writer for pilot project on assessing readiness in statistics for incoming MBA students.
    - Creation of instructional software including text and 400 multiple choice questions: *Business Ready Statistics*.
- Center for Sustainable Aluminum Industry (CSAI – A Sloan Foundation Center): $50,000 contract (2006 -2007).
- Expert Witness for Static Control versus Lexmark: 2006-2007.
- Secat, Inc. (Metallurgical research lab), 2005-2006.
- Oklahoma State University: Athletic Department, 1996.

MEMBERSHIPS
- American Marketing Association
- Council of Supply Chain Management Professionals
- Academy of Marketing Science

HONORS
- 2004, 2008: Outstanding Research Award, College of Business, University of Louisville.
- 2003: Outstanding College Faculty Member Award, College of Business, University of Louisville.
- 2002: Outstanding Paper Award for "Applied Product Knowledge and Performance: Moderating Effects of Uncertainty:" *International Journal of Quality & Reliability Management*.
- 1999: Outstanding Paper Award for "Total System JIT Outcomes: Inventory, Organization, and Financial Effects:" *International Journal of Physical Distribution & Logistics Management*.
- 1995: Best Paper Award for "Form Postponement as a Strategic Initiative in Affecting Organizational Design:" *American Marketing Association 1995 Summer Educators' Conference*.
- 1994: Greiner Undergraduate Teaching Excellence Award, Oklahoma State University.
- 1989: Best Student Paper Award for "The Effect of Product Diversification and Size on the Organizational Structure of Demand Servicing Activities:" *American Marketing Association 1989 Summer Educators' Conference*.
- 1978-1981: ESSO Canada undergraduate scholarship.

Cost/Funding Explanation

Complete the following table for the first five years of the proposed program and provide an explanation of how the institution will sustain funding needs. For any existing dollar amounts and department allocation for new dollar amounts reported in the Expenses spreadsheet, also add the dollar amounts to the Funding Sources spreadsheet under Internal allocation or reallocation.

You must add an explanation/justification for any dollar amount reported in this table.

*The FundingSource Expenses-Combined spreadsheet will pre-populate from the numbers entered into the Funding Sources and Expenses spreadsheets. The total funding and expenses shown in the Combined spreadsheet should be the same (i.e., there should be enough funding to cover the proposed expenses). Provide an explanation for any excess funding beyond those needed to cover expenses.

A. Funding Sources, by year of program:	1st Year	2nd Year	3rd Year	4th Year	5th Year
Total Resources Available from Federal Sources					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Funding Sources, by year of program *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Total Resources Available from Other Non-State Sources					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Funding Sources, by year of program *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
State Resources					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Funding Sources, by year of program *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Internal					
Internal Allocation	$ -	$ -	$ -	$ -	$ -
Internal Reallocation	$ -	$ -	$ -	$ -	$ -

Narrative Explanation/Justification: *The sources and process of allocation and reallocation should be detailed, including an analysis of the impact of the reduction on existing programs and/or organization units. Internal reallocation are those estimated dollars that will be dedicated to fund the start-up and support of the new academic program – typically defined as faculty, administrative/staff and operational expenses.*

Funding Sources, by year of program *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Student Tuition					
~ New	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00
~ Existing					

Narrative Explanation/Justification: *Describe the impact of this program on enrollment, tuition, and fees.*

The credit hour charge will $750, which is the rate we have applied to the TFTFS for all COB graduate-level certificates. It is expected that 20 students will enroll in nine credit hours per academic year. This should generate total revenue to UofL of: 20 students x 12 CH per year per student x $750 per CH = $180,000.

Total	1st Year	2nd Year	3rd Year	4th Year	5th Year
~ New	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00
~ Existing	$ -	$ -	$ -	$ -	$ -

		1st Year	2nd Year	3rd Year	4th Year	5th Year
A.	**TOTAL - Funding Sources (REVENUES)**	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00

$ 900,000.00	**Funding Total over 5 Years (will pre-populate)**	

Cost/Funding Explanation

Complete the following expense spreadsheet for the first five years of the proposed program

Provide a detailed explanation wherever dollar amounts are reported, including how the numbers were calculated.

You should also add any existing dollar amounts and department allocation for new dollar amounts reported in this Expenses spreadsheet to the Funding Sources spreadsheet (under Internal allocation or reallocation).

*The FundingSource Expenses-Combined spreadsheet will pre-populate from the numbers entered into the Funding Sources and Expenses spreadsheets. The total funding and expenses shown in the Combined spreadsheet should be the same or show an excess in funding (provide an explanation for any excess funding).

B. **Breakdown of Budget Expenses/Requirements**	**1st Year**	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**
Staff					
Executive, Administrative, Managerial					
~ New	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
~ Existing	$ -	$ -	$ -	$ -	$ -
Other Professional					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Faculty					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Graduate Assistants					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Student Employees					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -

Narrative Explanation/Justification: *Includes salaries for all listed above and explain how they were calculated. Identify the number of new faculty required and whether the new hires will be part-time or full-time. Identify the number of assistantships/stipends that will be provided. Include the level of support for each assistantship/stipend.*

The program will require a program director with a stipend of $10,000 per year. No new faculty or faculty instructional expenses will be required as all but one 1.5 credit hour course is already being offered under the MBA 680 elective course prefix. Net new instructional expenses will effectively be nil.

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Equipment and Instructional Materials					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Library					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Contractual Services					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Academic and/or Student Support Services					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Other Support Services					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Faculty Development					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Assessment					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Student Space and Equipment (if doctorate)					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1ˢᵗ Year	2ⁿᵈ Year	3ʳᵈ Year	4ᵗʰ Year	5ᵗʰ Year
Faculty Space and Equipment (if doctorate)					
~ New	$ -	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:					

Breakdown of Budget Expenses/Requirements *(continued)*	1ˢᵗ Year	2ⁿᵈ Year	3ʳᵈ Year	4ᵗʰ Year	5ᵗʰ Year
Other					
~ New	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
~ Existing	$ -	$ -	$ -	$ -	$ -

Narrative Explanation/Justification:					
The certificate will require an annual marketing and promotional budget of $10,000 per year					
Total					
~ New		$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00
~ Existing		$ -	$ -	$ -	$ -	$ -

		1ˢᵗ *Year*	2ⁿᵈ *Year*	3ʳᵈ *Year*	4ᵗʰ *Year*	5ᵗʰ *Year*
B.	**TOTAL - Expenses/Requirements (EXPENDITURES)**	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00

$ 100,000.00	**Expenses Total over 5 Years (will pre-populate)**	

		1st Year	2nd Year	3rd Year	4th Year	5th Year
A.	TOTAL - Funding Sources (REVENUES)	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00	$ 180,000.00
		1st Year	2nd Year	3rd Year	4th Year	5th Year
B.	TOTAL - Expenses/Requirements (EXPENDITURES)	(20,000.00)	(20,000.00)	(20,000.00)	(20,000.00)	(20,000.00)
	BALANCE - (SURPLUS/DEFICIT)	$160,000.00	$160,000.00	$160,000.00	$160,000.00	$160,000.00

<div align="center">

University of Louisville
Blockchain
Spring 2021

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Professor: Dr. Lori Tang
Email: lori.tang@louisville.edu
Tel: 502-852-4819
Office: College of Business, Room 274

Course Description and Objective:

The purpose of this course is to explore Blockchain concepts and how to apply them in a wide range of real business scenarios and explore unique, challenge-based business scenarios using design thinking methodology.

The objective of this course includes:
- Understand the history and evolution of Blockchain.
- Develop an introductory technical understanding of Blockchain and how it works.
- Understand basic concepts of design thinking.
- Learn from industry's experience on blockchain use cases.
- Understand Bitcoin and Cryptocurrency.

Course Format:

Be warned, this is a very intensive and demanding course, which will require a lot of your time and energy during the five weeks. Attendance, preparation for class, and class participation are essential. You are expected to be familiar with a lot of background material. If you are not, it is your responsibility to familiarize yourself with this material. Additionally, you MUST read the assigned material before class. Not all the material will be covered in class due to time constraints.

Exam and Grading:

Final Test		50%
Project Presentation and Report		40%
Class Attendance and Participation		10%
	Total	100%

$90\% \leq A < 100\%$; $80\% \leq B < 90\%$; $70\% \leq C < 80\%$; $60\% \leq D < 70\%$;
$F < 60\%$

Examination

The exam must be taken at the announced time. A make-up exam will only be given if the student can demonstrate extenuating circumstances. I reserve the right to require proof, if necessary in writing, of these circumstances. Be aware that the contents of a make-up exam need not necessarily match the contents of a regular exam. Additionally, any individual student will not be allowed to do extra work to improve a grade. Any extra credit, if offered, will be made available to all

students. All students follow the same guidelines. The extra (credit) work, if offered, must be taken at the time administered unless there is an extenuating circumstance. Again, I reserve the right to require proof, if necessary in writing. The contents of the extra make-up need not necessarily match the contents of a regular extra credit.

Cheating AND Plagiarism:

I take the issue of cheating and plagiarism seriously. Please report any violations to me. I encourage cooperative work among students on homework assignments and group projects. You must agree not to cheat on exams; and to inform me if you see other students cheating. Seating space may be at a premium for this class, and it is tempting to glance at your neighbor's solutions. Do not do it: the penalties far outweigh the benefit.

        Cheating

             Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means.

        Plagiarism

             Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work."

Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university.

Student with Disabilities:

The University of Louisville is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodation to participate in and complete requirements for this class, contact the Disability Resource Center (Robbins Hall, 852-6938) for verification of eligibility and determination of specific accommodations.

Student Responsibilities/College and University issues
University of Louisville student conduct and responsibilities
This course will abide by University of Louisville student conduct and responsibilities with regards to ethics and related issues:
http://louisville.edu/dos/students/policies-procedures/student-handbook.html#codeofstudentconduct

College of Business student conduct and responsibilities
This course will abide by College of Business student conduct and responsibilities with regards to ethics and related issues:
http://business.louisville.edu/students/college-of-business-academic-dishonesty-policy

Religious holiday conflict policy
http://louisville.edu/diversity/resources/work-restricted-holy-day-policies-calendar.html
University policy on equal access
http://louisville.edu/disability/policies-procedures

Title IX/Clery Act Notification
Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide
(http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure

Tentative Course Outline:

Class	Topic
1	Basic Concepts of Blockchain
2	Status of Blockchain
3	Important Use Cases of Blockchain
4	Cryptocurrency and Bitcoin
5	**Project Report Due;** **Final Exam**

Important: This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

UNIVERSITY OF
LOUISVILLE®
COLLEGE OF BUSINESS

Date: 3/5/2020

Re: Letter in support of proposed Graduate Certificate in Managerial Analytics

To whom it may concern:

As Dean of the College of Business, University of Louisville, I fully support the creation of the Graduate Certificate in Managerial Analytics.

Regards,

Todd Mooradian,

Dean, College of Business, University of Louisville

UNIVERSITY OF
LOUISVILLE.
UNIVERSITY LIBRARIES

March 3, 2020

Connie Shumake
Office of the Provost
University of Louisville
Louisville, KY 40292

Connie,

We have been asked to provide a letter of support for the proposed online graduate certificate in Managerial Analytics in the College of Business. This certificate only adds one new 1.5 credit hour class but otherwise is composed entirely of courses currently supported by the Libraries. Our review indicates that we do not anticipate needing to add any additional resources in support of it.

Please contact us if you have any questions or need additional information.

Sincerely,

Robert E. Fox, Jr.
Dean, University Libraries

Cc: Sue Finley
         Richard Germain
         Claudene Sproles