The University of Georgia

University Council
Athens, Georgia 30602

March 17, 2017

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Dear Colleagues:

The attached proposal from the College of Engineering for a new Undergraduate Certificate in Informatics will be an agenda item for the March 24, 2017, Full University Curriculum Committee meeting.

Sincerely,

Alison Alexander

Alison F. Alexander, Chair
University Curriculum Committee

cc: Provost Pamela S. Whitten
Dr. Rahul Shrivastav

OUTLINE FOR AN INTERDISCIPLINARY CERTIFICATE PROGRAM

I. Basic Information

1. Institution University of Georgia Date 2/20/2017
2. School/College College of Engineering
3. Department/Division Georgia Informatics Institutes for Research and Education
4. Certificate Title (as it will appear in the *Bulletin*) Informatics
5. Level (undergraduate or graduate) undergraduate
6. Proposed starting date for program 8/1/2017
7. Abstract of the program for the University Council's agenda:
   Provide a one or two page summary of the proposed program that includes an overview and highlights of the response to the criteria in Section II.
8. Submit letters of support from the various academic unit heads involved in developing the program initiative or whose support is vital to its success.

II. Response to the Criteria for All Programs

The criteria that proposed new programs are expected to meet in order to be approved and implemented within the University of Georgia are listed below. Please provide sufficient explanation as to how the proposed program satisfies each criterion.

1. *The purpose and educational objectives of the program must be clearly stated, and must be consistent with the role, scope, and long-range development plan of the institution.*

   A. State the purpose and educational objectives of the program and explain how the program complements the role, scope, and long-range development plan of the institution.

   The purpose of this program is to expand the capacity of the University of Georgia to teach and train students in the modern, data-intensive, computationally-driven, interdisciplinary, and connected decision making process.

   Students completing the certificate are expected to be more competitive than their peers for modern, data- and information-centric jobs, with the ability to

   - Explain the difference between data, meta-data, information, and knowledge across multiple domains
   - Analyze processes that generate data to understand their nature and asses their quality
   - Make application-level predictions and decisions based on data analysis and information synthesis
   - Configure and operate modern computational tools that support large-scale informatics tasks both broadly and in a specific application domain
   - Secure data and information systems to protect user privacy and business interests

   The introduction of this certificate coincides with the formation of the Georgia Informatics Institutes for Research and Education (GII) in January 2017. The certificate will be the centerpiece of the GII's instructional mission, which includes a directive to "infuse the theory and application of information science and engineering across the university curriculum".

B. Describe the interdisciplinary nature of the proposed program. Which school(s) or college(s) and department(s) will be involved in the development of the program? Describe the expected stage of development for this program within five years.

Informatics is inherently interdisciplinary and promotes increased interdisciplinary activity. An expert in informatics has broad knowledge of computational resources and data resources across many domains, increasing his or her capacity to integrate these resources for new applications. To this end, students taking the informatics certificate will benefit from the cross-pollination required by the structure of the program, which requires an interdisciplinary course and exploration of discipline-specific informatics in at least two domains. The program has been designed to support students across the university, and includes the following partners as core participants:

- College of Engineering
- Institute of Bioinformatics
- Department of Computer Science
- Department of Geography
- Digital Humanities Program
- Department of Management Information Systems

These partners have agreed to regularly offer the courses required by students earning the certificate (described below).

2. *There must be a demonstrated and well-documented need for the program.*

A. Explain why this program is necessary.

Informatics knowledge and skills are becoming prerequisites for modern jobs. Recently, the large social networking site LinkedIn listed ten skills that were highly desired by employers using its site for recruiting. **Every item on the list was related to informatics.** These include statistical analysis and data mining, mobile development, network security, and data presentation. The full list can be found here: https://blog.linkedin.com/2016/10/20/top-skills-2016-week-of-learning-linkedin

Currently, the most direct path for undergraduate students at UGA to obtain these skills is to major in Computer Science, Computer Systems Engineering, or Management Information Systems, perhaps earning the newly approved Certificate in Applied Data Science. This pathway is highly effective for students to obtain jobs in the development and design of new informatics systems. The certificate program provides a pathway for UGA students in any major to obtain broadly marketable skills in informatics and the specific expertise to use those skills in their chosen domain. Earning the certificate will enable UGA students to differentiate themselves and be more competitive than their peers for modern jobs in their field of interest.

B. In addition, provide the following information:

1. Semester/Year of Program Initiation

   The program can begin as early as fall 2017. The foundational informatics course has been offered for two concurrent semesters and is planned for fall 2017 again. The remaining courses are already in existence and regularly taught.

2. Semester/Year Full Implementation of Program – Spring 2018

3. Semester/Year First Certificates will be awarded – Spring 2017

   We expect that the earliest students will be able to complete the certificate will be two fall/spring semesters. Many students have already taken INFO 2000 and will have taken at least one of the required foundation courses and electives.

4. Annual Number of Graduates expected (once the program is established) – 150

   We currently have resources to support 50 students enrolled in INFO 2000 each semester, fall, spring and summer. This will allow for a maximum of 150 students per year to earn the certificate.

5. Projected Future Trends for number of students enrolled in the program

   We project an initial enrollment of 25 students in INFO 2000 in the fall 2017 semester, increasing to 35 in spring 2017 (as the certificate grows in scope and students learn about the program) and to reach our capacity by fall 2018. Additional growth will be dependent on resources to offer INFO 2000 to more students.

3. *There must be substantial evidence that student demand for the program will be sufficient to sustain reasonable enrollments in the program.*

   A. Provide documentation of the student interest in the program, and define what a reasonable level of enrollment is for a program of this type. Provide evidence that student demand will be sufficient to sustain reasonable enrollments.

   Twenty academic and research units at UGA wrote letters supporting the need for the GII and its intended programs, which included the proposed certificate.

   Fifty students have taken Informatics I thus far, (Offered as ENGR 4900 in fall 2016, and INFO 2000 in spring 2017) without the certificate in place. The core engineering informatics course (currently offered as ENGR 4900) currently has 25 students enrolled. Earning the certificate in Informatics is a logical follow-up to these activities and is expected to be popular within the 8 degree programs within Engineering. We expect that approximately half of the students working towards the certificate will come from within the Engineering program, which has developed the capacity and pathway towards earning the certificate, and has strong evidence of industry demand for these skills from our Industrial advisory board.

   B. In addition, provide the following information:

   To what extent will minority student enrollments be greater than, less than, or equivalent to the proportion of minority students in the total student body?

   There is no evidence to suggest that enrollment in the informatics certificate will differ substantially from the proportion of minority students in the total student body.

4. *The design and curriculum of the program must be consistent with appropriate disciplinary standards and accepted practice.*

   Provide the following information:

   A. Present a detailed curriculum outline of the program listing specific course requirements (to include programs of study, course prefix, number, and title).

   Students completing the certificate shall have earned a grade of C or better in each of the required courses. At least15 credit hours are required to earn the certificate, as described below:

   One foundational informatics course (3 credit hours)**:**

   - INFO 2000 – Informatics I
     - No prerequisite

Two additional courses (at least 6 credit hours) selected a list of core disciplinary informatics courses that evolve based on current curricular offerings and review by the CENGR curriculum committee. The following list of courses could be used:

- BINF(BCMB) 4005/6005 – Essential Computing Skills for Biologists
  - Permission of department
- CSCI 2150-2150L – Introduction to Computational Science
  - MATH 1113 or Permission of department
- ENGL(LING) 4885 Introduction to Humanities Computing
  - Permission of department
- INFO 4150 – Engineering Informatics
  - INFO 2000 or Permission of department
- GEOG 2011-2011L Introduction to Geographic Information Science
  - No Prerequisite
- MIST 4610 – Data Management
  - MIST 2090 or MIST 2090E or MIST 2190H or CSCI 1100-1100L
- HPAM 4410 – Introduction to Health Informatics and Analytics
  - [HPAM 3500 and (HPAM 3600 or HPAM 3600E)] or permission of department

Two additional courses (at least 6 credit hours) that satisfy the criteria that the course must include a substantial informatics component. A list of approved courses will be maintained by the GII curriculum committee and reviewed every three years. The following courses are proposed for inclusion in the initial list, arranged into general topic areas that may align with student interests:

Computer Science, Statistics, & Engineering

CSCI 4150/6150	Numerical Simulations in Science and Engineering
CSCI 4210/6210	Simulation and Modeling
CSCI 4250/6250	Cyber Security
CSCI 4360/6360	Data Science II
CSCI 4370/6370	Database Management
CSCI 4380/6380	Data Mining
CSCI 4850/6850	Biomedical Image Analysis
CSEE 4210	Digital Signal Processing
CSEE 4240	Wireless Sensor Networks
CSEE 4630	Instrumentation for Monitoring Biological Signals
CVLE 4750	Building Information Modeling (BIM)
ENGG 4620/6620	Biomedical Imaging
ENGR 4140/6140	Systems Modeling
ENGR 4230/6230	Sensors and Transducers
ENGR 4480/6480	Instrumentation for Environmental Quality
ENGR 4540/6540	Applied Machine Vision
ENVE 4710	GIS for Urban Engineering, Planning, and Development
STAT 4220	Applied Experimental Designs
STAT 4230/6230	Applied Regression Analysis
STAT 4280/6280	Applied Time Series Analysis

Humanities & Social Sciences

ADPR 5750/7750	Social Media Analytics, Listening, and Engagement
ANTH 4200/6200	Field Methods in Archaeology
ANTH 4240/6240	Laboratory Methods in Archaeology
COMM 3700	Empirical Research Methods In Communication
DIGI 3200**	Intellectual Property in the Digital Age
LING(ENGL) 4080	Language Variation and the Linguistics of Speech
ENGL 3410	Literature and Media
ENGL 3590W	Technical and Professional Communication
ENGL 4826	Style: Language, Genre, Cognition
ENGL 4832W	Writing for the World Wide Web
ENGL 4837W/6837W	Digital Storytelling
ENGL(LING) 4886	Text and Corpus Analysis

ENGL 4888	Humanities Computing I: Knowledge Representation
FHCE 4000/6000	Consumer Analytics and Research Methods I
FHCE 5050/7050	Consumer Analytics and Research Methods II
FHCE 5150/7150	Applied Consumer Policy Analytics
FHCE 5960/7960	Quantitative Internship in FHCE
GEOG 4330/6330-4330L/6330L	Aerial Photographs and Image Interpretation
GEOG 4350/6350-4350L/6350L	Remote Sensing of Environment
GEOG 4370/6370-4370L/6370L	Geographic Information Science
GEOG 4380/6380-4380L/6380L	Transportation Modeling and GIS
GEOG 4430/6430-4430L/6430L	Advanced Image Analysis and Photogrammetry
GEOG 4450/6450	Digital Image Analysis
GEOG 4460/6460	Field Methods in Remote Sensing
GEOG 4570/6570-4570L/6570L	Advanced Geographic Information Science
GEOG 4590/6590-4590L/6590L	Programming for Geographic Information Science
POLS(SOCI) 3700	Research Methods in Criminal Justice
PSYC 3990	Research Analysis in Psychology
SOCI 3600	Logic and Practice of Sociological Research
SOCI 4930/6930	Experimental Research in Sociology

**** Course does not exist in CAPA system.**

Business & Management

BUSN 4000	Predictive Modeling and Optimization
FHCE 4000/6000	Consumer Analytics and Research Methods I
FHCE 5050/7050	Consumer Analytics and Research Methods II
FHCE 5150/7150	Applied Consumer Policy Analytics
FHCE 5960/7960	Quantitative Internship in FHCE
MARK 4350	Marketing Analytics
MARK 4650	Digital Marketing Analytics
MIST 4550/6550	Energy Informatics
MIST 4610	Data Management
MIST 5620	Business Intelligence

Biological & Physical Sciences & Agriculture

AAEC 4610-4610L	Applied Econometrics
BINF(PBIO) 4040/6040	Essential Biology for Quantitative Scientists
CRSS 4030/6030-4030L/6030L	Sensors in Precision Agriculture
CRSS 4050/6050	Improving Nutrient and Energy Efficiency with GIS
CRSS 4060/6060-4060L/6060L	Advanced Topics in Precision Agriculture
GENE 4220L	Bioinformatics and Modeling Laboratory
GENE 4300/6300	Evolutionary Genomics
HORT 4095/6095	GPS/GIS Applications for Landscape Managers
PBIO(BINF) 4550/6550	Bioinformatics Applications
STAT 4630/6630	Statistical Methods in Bioinformatics I
STAT 4640/6640	Statistical Methods in Bioinformatics II

B. Identify which aspects of the proposed curriculum already exist and which constitute new courses.

All of the above courses are in existence with the exception of Engineering Informatics (ENGR4000), which is also being requested for approval alongside this proposal, but has been taught under a special topics designation for two semesters.

C. Identify model programs, accepted disciplinary standards, and accepted curricular practices against which the proposed program could be judged. Evaluate the extent to which the proposed curriculum is consistent with these external points of reference and provide a rationale for significant inconsistencies and differences that may exist.

The proposed certificate is highly innovative with respect to existing certificates around the country. One example certificate is offered by the School of Computing, Informatics & Decision Systems Engineering at Arizona State University.

http://cidse.engineering.asu.edu/forstudent/undergraduate/certificates/informatics/

This program includes four core informatics courses ("Introduction to Informatics," "mathematical Foundations of Informatics," "Applied Data Structures and Algorithms," and "Evaluation of Informatics Systems"), an option of two statistics courses ("Probability and Statistics for Engineering Problem Solving" or "Introductory Applied Statistics"), and two electives (which notably include several domain-specific courses, such as "Technical Editing" and "Social Effects of Science and Technology").

The primary difference between the proposed certificate and many others around the country is the reduction of direct programming and statistics emphasis in favor of direct application of such skills in domains after having a broad introduction to tools and techniques). Certificates, such as the above ASU program, are much more likely to be taken by students with a computing and statistics background or major, than by students in the humanities, social/biological/physical sciences, and Engineering (beyond computer and electrical engineering). We also note that UGA already offers a very competitive certificate in Applied Data Sciences that roughly matches the ASU program.

D. If program accreditation is available, provide an analysis of the ability of the program to satisfy the curricular standards of such specialized accreditation.

N/A

5. *Faculty resources must be adequate to support an effective program.*

A. Define the size, experience, and specializations of the full-time faculty needed to support an effective program. Identify the extent to which such faculty resources currently exist at the institution, and what additions to the faculty will be needed to fully implement the program. Specify how many full-time faculty will provide direct instructional support to this program.

Eight instructors (full-time or part-time faculty) are required to implement the non-elective requirements of the certificate (INFO 2000 and the 7 foundation courses). All instructors for these courses have been identified, and all courses are taught at least annually. Many instructors will be indirectly involved through electives.

The GII will provide the instructional support for INFO 2000 and for overall administration of the certificate. The College of Engineering supports this course and has agreed to provide the GII the necessary resources (instructional time, IT support, staff support) to continue teaching the course and to expand it as the enrollment grows.

We expect manageable enrollment increases in the foundational courses, and the elective courses to a lesser extent, due to the proposed certificate. Additional tuition generated by increased enrollment from outside the primary degree program should offset additional instructional time for the affected programs.

B. In addition, for each faculty member directly involved in this program, list:

1) Name, rank, degrees, academic specialty, educational background
2) Special qualifications related to this program
3) Relevant professional and scholarly activity for past five years
4) Projected responsibility in this program and required adjustments in current assignments

No adjustments will be necessary to current assignments to implement the proposed certificate program. The following members of the GII are directly involved:

- Kyle Johnsen
  - PhD, University of Florida
  - Associate Professor, College of Engineering
  - Adjunct Professor, Department of Computer Science
  - Director, GII
  - Dr. Johnsen is a founder and the director of the GII and will direct and oversee the program alongside the curriculum committee of the GII and the curriculum committee of the College of Engineering
  - Profile Link: http://www.engineering.uga.edu/people/profile/kyle-johnsen-ph.d
- Lakshmish Ramaswamy
  - PhD, Georgia Institute of Technology
  - Professor, Department of Computer Science
  - Associate Director, GII
  - Dr. Ramaswamy is a founder of the GII and will assist Dr. Johnsen with oversight of the program, and will work to broaden the participation of students across campus in programs and of departments offering elective courses that satisfy the certificate.
  - Profile Link: http://www.cs.uga.edu/directory/laksmish-ramaswamy
- Deepak Mishra
  - PhD, University of Nebraska
  - Associate Professor, Department of Geography
  - Dr. Mishra is a founder of the GII and is an expert in geographic information science. He will be ensure that the GEOG2011/2011L course meets the certificate requirements. He is also primary instructor for many of the GEOG courses listed in the certificate. Finally, he serves as the chair of the GII curriculum committee.
  - Profile Link: http://geography.uga.edu/directory/profile/mishra-deepak/
- Benjamin Manning
  - MS, University of Southern Mississippi
  - Instructor, College of Engineering
  - Program Consultant, GII
  - Mr. Manning is the current and future instructor for INFO2000
  - Profile Link: http://www.engineering.uga.edu/people/profile/ben-manning
- Jessica Kissinger
  - PhD, Indiana University
  - Professor, Department of Genetics
  - Director, Institute of Bioinformatics
  - Dr. Kissinger is a founder of the GII and is responsible for overall operation of the Institute of Bioinformatics and has taught and manages the instruction of BINF4005.
  - Profile Link: http://www.genetics.uga.edu/directory/jessica-kissinger

- Thiab Taha
  - PhD, Clarkson University
  - Professor and Department Head, Department of Computer Science
  - Dr. Taha is a founder of the GII and is responsible for overall operation of the Department of Computer Science and has taught and manages the instruction of CSCI2150.
  - Profile Link: http://www.cs.uga.edu/directory/thiab-taha
- William Kretzschmar
  - PhD, University of Chicago
  - Harry and Jane Willson Professor in Humanities, Department of English
  - Dr. Kretzschmar is a founder of the GII and one of the founders of the Digital Humanities program and GII, and will work with the ENGL4885 course.
  - Profile Link: https://www.english.uga.edu/directory/495/detail
- Jagganath Rao
  - MBA, Manchester Business School
  - Adjunct Instructor, College of Engineering
  - Senior Vice President, Siemens Industry, Inc
  - Mr. Rao is a highly-accomplished informatics professional who is currently teaching the Engineering Informatics course (ENGR4000) under a special topic designation, and who serves as the chair of the College of Engineering Industrial Advisory Board.
  - Profile Link: https://engineering.uga.edu/people/advisory-board/rao & https://www.linkedin.com/in/raohj
- Dale Green
  - M.D. University of North Caroline at Chapel Hill School of Medicine
  - Associate professor, Department of Health Policy and Management
  - Dr. Green is a founder of the GII, and is an expert in the area of health informatics. He currently teaches and will be responsible for the conent of the HPAM4410 course.
  - Profile Link: https://www.publichealth.uga.edu/hpam/about/directory/faculty/dale_green
- Richard Watson
  - PhD, University of Minnesota
  - J. Rex Fuqua Distinguished Chair for Internet Strategy, Department of Management Information Systems
  - Dr. Watson is a founder of the GII and is an expert in the energy informatics area. He has taught and will be responsible for the content of the MIST4610 course.
  - Profile Link: http://www.terry.uga.edu/directory/profile/rwatson/

C. Where it is deemed necessary to add faculty in order to fully develop the program give the desired qualifications of the persons to be added.

6. *Library, computer, and other instructional resources must be sufficient to adequately support the program.*

A. Describe the available library resources for this program and the degree to which they are adequate to support an effective program. Identify the ways and the extent to which library resources need to be improved to adequately support this program.

Library resources are currently sufficient.

B. Likewise, document the extent to which there is sufficient computer equipment, instructional equipment, laboratory equipment, research support resources, etc. available to adequately support this program. Specify improvements needed in these support areas.

Available computing resources through the College of Engineering are currently sufficient, and will likely improve as the GII grows.

7. *Physical facilities necessary to fully implement the program must be available.*

Describe the building, classroom, laboratory, and office space that will be available for this program and evaluate their adequacy to fully support an effective program. Plans for allocating, remodeling, or acquiring additional space to support the program's full implementation of the program should also be identified.

No additional space is required beyond current facilities.

8. *The expense to the institution (including personnel, operating, equipment, facilities, library, etc.) required to fully implement the program must be identified.*

A. Detailed funding to initiate the program and subsequent annual additions required to fully implement the program are needed below. Estimates should be based upon funding needed to develop an effective and successful program and not upon the minimal investment required to mount and sustain a potentially marginal program.

No additional funding is needed for years 1 – 3. Existing courses and instructors are adequate to serve the expected number of students.

B. Indicate the extent of student support (fellowships, assistantships, scholarships, etc.) available for this program, and evaluate the adequacy of this support. Assistantships funded from institutional (as opposed to sponsored) funds should be included in this funding analysis as well.

N/A

9. *Commitments of financial support needed to initiate and fully develop the program must be secured.*

A. Identify the sources of additional funds needed to support the program and the probability of their availability.

The GII is fully committed to supporting the proposed program and includes the necessary financial resources allocated to it by the College of Engineering. Additional funding may be necessary to grow the program beyond current estimates.

B. It is particularly important to include in this response the long-range plans for additional or expanded facilities necessary to support an effective program. Evaluate the timing and likelihood of such capital funding.

Additional instructional support may be needed to support sections of INFO2000. Benjamin Manning, current instructor for INFO2000 could serve in this capacity if necessary.

10. *Provisions must be made for appropriate administration of the program within the institution and for the admission to and retention of students in the program in keeping with accepted practice.*

Describe and evaluate the structure for the administration of the program. Explain the degree to which that structure is in keeping with good practice and accepted standards. Similarly, explain how and by what criteria students will be admitted to and retained in the program, and how these procedures are consistent with accepted standards for effective and successful programs.

The program will be administered by the director and associate director of the GII with staff support provided by the College of Engineering's Academic Office. All students at UGA are eligible to take INFO 2000.

UNIVERSITY OF GEORGIA

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March 2, 2017

Dear University Curriculum Committee,

This letter is in support of the Undergraduate Certificate in Informatics proposed by the Georgia Informatics Institutes for Research and Education and the College of Engineering.

The prolific use of connected, digital technologies in nearly all fields has created vast data sets and high velocity, real-time data streams that afford new ways of understanding the world and addressing society's complex, interconnected problems. The faculty, students, and alumni of the University of Georgia are increasingly engaged in computational processes that support evidence-based decision making. In response, jobs are changing and new jobs are emerging that require an understanding of digital data and the computational skillset necessary to manipulate them.

In response to this emerging demand, informatics courses have been created for many degree programs in areas such as programming, data management, data analytics, visualization, and decision making. These courses have discipline specific components that focus on unique characteristics of the domain, however many parts are common and could be factered out and better handled by courses that are more generic and can server a larger audience. The proposed certificate, which intertwines these courses with interdisciplinary, foundational informatics courses, will empower students with the computational skills and tools to draw upon data and knowledge from multiple domains, better preparing them for success in their careers.

During this time, we will work with the Georgia Informatics Institutes, in which several of our faculty are already engaged, to align our course offerings with the fundamentals taught in INFO 2000 and better position the course to serve a broad audience.

In summary, we fully and strongly support the proposed certificate, and we look forward to our instructors and students making the interdisciplinary connections afforded by its structure.

Sincerely,

Jessica Kissinger

Jessica C Kissinger
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Marie-Claude (Maric) Boudreau
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March 3rd, 2017

Dear University Curriculum Committee,

This letter is in support of the Undergraduate Certificate in Informatics proposed by the Georgia Informatics Institutes for Research and Education and the College of Engineering.

The faculty, students, and alumni of the University of Georgia are increasingly engaged in computational processes that support evidence-based decision making. The prolific use of connected, digital technologies in nearly all fields has created vast data sets and high velocity, real-time data streams that afford new ways of understanding the world and addressing society's complex, interconnected problems. In response, existing jobs are changing and new jobs are emerging that require a deep understanding of data and the pipeline that generates information upon which knowledge is formed, as well as the computational skillset necessary to manipulate data streams and databases.

Our curricula are changing as well. Informatics courses have been created for many degree programs in areas such as programming, data management, data analytics, visualization, and decision making. These courses tend to be discipline specific, focusing on the unique characteristics of the domain's data and knowledge. The proposed certificate, which intertwines these courses with interdisciplinary, foundational informatics courses, will empower students with the computational skills and tools to draw upon data and knowledge from multiple domains, better preparing them for success in their careers.

The certificate includes our course, MIST4610, Data Management, within its core interdisciplinary set. This course provides strong support for students learning modern business practices in designing and querying databases; it is designed to serve a broad audience as the core principles are applicable to any data management issue. It is very appropriate for INFO 2000 students wishing to gain deeper knowledge of this topic as part of their Certificate in Informatics. The course is offered each year, and has the capacity to support the increased student flow expected after the introduction of the certificate for at least the next three years.

In summary, we fully and strongly support the proposed certificate, and we look forward to our instructors and students making the interdisciplinary connections afforded by its structure.

Marie-Claude Boudreau

Approvals on File

Proposal: Undergraduate Certificate in Informatics

Department: Georgia Informatics Institutes for Research and Education

College: College of Engineering

Proposed Effective Term: Fall 2017

Institute:

- Georgia Informatics Institute for Research and Education Director, Dr. Kyle Johnsen, 3/23/17

School/College:

- College of Engineering Dean, Dr. Donald Leo, 2/20/2017

Additional Support:

- Institute of Bioinformatics Director, Dr. Jessica Kissinger, 3/2/17
- Management Information Systems Department Head, Dr. Marie-Claude Boudreau, 3/3/17