Title of Program: Geoinformatics and Geospatial Intelligence

Level (Masters/Ph.D.): Masters

Please Indicate: ___ X ___ Program _______ Certificate _______ Concentration _____ Track

Description of certificate, concentration or degree program:
Please attach a description of the new certificate or concentration. Attach Course Inventory Forms for each new or modified course included in the program. For new degree programs, please attach the SCHEV Program Proposal submission.

Please list the contact person for this new certificate, concentration, track or program for incoming students:
Program Coordinator, Dr. Peter Becker, 703-993-3619, pbecker@gmu.edu

Approval from other units:
Please list those units outside of your own who may be affected by this new program. Each of these units must approve this change prior to its being submitted to the Graduate Council for approval.

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<th>Unit</th>
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Submitted by: ___________ Peter A. Becker __________________________ Email: pbecker____

Graduate Council approval: ______________________________ Date: ____________

Graduate Council representative: ___________________________ Date: ____________

Provost Office representative: _____________________________ Date: ____________
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<th>1. Institution</th>
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<td>3. Title of proposed program:</td>
<td>MASTER OF SCIENCE IN GEONFORMATICS AND GEOSPATIAL INTELLIGENCE</td>
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<td>11. If collaborative or joint program, identify collaborating institution(s) and attach letter(s) of intent/support from corresponding chief academic officers(s)</td>
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<td>Campus (or off-campus site)</td>
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<td>13. Name, title, telephone number, and e-mail address of person(s) other than the institution’s chief academic officer who may be contacted by or may be expected to contact Council staff regarding this program proposal:</td>
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<tr>
<td>PROF. ANTHONY STEFANIDIS</td>
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<tr>
<td>DEPARTMENT OF GEOGRAPHY AND GEOINFORMATION SCIENCE, COLLEGE OF SCIENCE, GEORGE MASON UNIVERSITY, 703-993-9237, <a href="mailto:astefani@gmu.edu">astefani@gmu.edu</a></td>
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I. DESCRIPTION OF THE PROPOSED PROGRAM

I.1 OVERVIEW

Aided by the proliferation of novel spatiotemporal data capturing, modeling, and analysis approaches, *geospatial intelligence* is emerging as a promising and much in-demand scientific concentration area. It addresses the collection, organization, analysis, and dissemination of information about physical features, man-made structures, moving objects, people, and events, that are geo-referenced or geo-located. Accordingly, its focus is primarily on the computational approaches that support the synthesis and analysis of diverse types of such information, in order to identify and monitor complex events and phenomena that manifest themselves over space and time. While geospatial intelligence has a strong Department of Defense connotation, the principles behind it have a strong dual usage potential, addressing the needs of a broader audience, ranging for example from intelligent navigation in urban spaces to emergency response to natural and man-made disasters. The term *geoinformatics* is used in the context of this document to refer to the scientific foundation behind the collection, organization, processing, analysis and dissemination of geospatial information.

The need for educational programs in geospatial intelligence and geoinformatics is becoming increasingly clear. For example, the sixteen federal intelligence agencies and the Director of National Intelligence have documented their growing need for expertise in geospatial intelligence, as it is essential for a variety of intelligence activities. In response to this realization, the US Geospatial Intelligence Foundation (USGIF\(^1\)) has worked with these agencies to develop guidelines and curriculum content criteria to accredit programs for geospatial intelligence analysts. This led to the establishment of an accreditation procedure to ensure the quality and breadth of the academic education offered under the umbrella of geospatial intelligence.

In response to this evolution of the marketplace for geoinformatics experts, George Mason University set-up a new Geospatial Intelligence Graduate Certificate (GIGC) program in 2007. Student response has been very positive, with approximately 60 students already registered, or lined-up to pursue this program in the next 2 years. Also, the academic quality of the GIGC program was recognized in 2008, as USGIF accredited the Mason program, making it one of the first 3 programs nationwide to receive this distinction.

As a natural extension of this work, we now propose a new Master of Science program in Geoinformatics and Geospatial Intelligence (MS-GGI). The program builds on, and extends our GIGC program to expand students’ primary knowledge base, and to offer advanced training in a variety of relevant topics. It comprises core and elective courses in the areas of remote sensing, geographic information science, and geospatial information technology. Through them, students will acquire analytical skills, creative thinking, and the ability to select, use, synthesize, and demonstrate both individually and collaboratively the techniques, skills, and tools necessary to solve geospatial intelligence and geoinformatics problems.

This new MS program will start in Spring Semester, 2010, and is expected to address the needs and interests of three types of students:

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\(^1\) www.usgif.org
• students already employed in geoinformatics or geospatial intelligence applications (i.e. federal agency and/or corporate/association personnel), or persons interested in getting into this field,
• students who are completing their graduate certificate in geospatial intelligence and wish to continue for a M.S. degree, and
• students who wish to pursue a Ph.D. degree in related fields in the College of Science.
Program graduates are expected to join federal and state agencies (e.g. the National Geospatial-Intelligence Agency), industry (e.g. SAIC, Northrop-Grumman), or even to pursue consulting careers in this field.

As geoinformatics is a strong and steadily expanding business community\(^2\), with a very strong presence in Northern Virginia, our new MS degree will address a nationally important principle with strong regional ties.

The resources required to bring this program (i.e. faculty and computing facilities) to bear are already available, and the College of Science has further committed to foster the program’s growth through additional support as needed.

I.2 Curriculum

By its nature, this M.S. program aims to communicate to its students the fundamental theoretical principles and application experience that exist at the intersection of 3 concentration areas (CAs):
• Geographic information Science (CA: GIS)
• Digital image analysis as it applies to geoinformatics and geospatial intelligence (CA: IA)
• Computational principles for geoinformatics and intelligence (CA: GeoComp)

Accordingly, the structure of the proposed degree reflects these 3 educational components. The GGI MS degree requires a minimum of 33 credit hours, or 10 courses, plus a thesis. These courses comprise mandatory core courses and elective courses to be selected from a list of offerings (and approved by the program coordinator). This way, we ensure that program graduates will have a good knowledge of the fundamentals of the above mentioned three concentration areas, while we offer some flexibility to customize their program, focusing on particular needs they may have.

Mandatory Foundation Courses:

• GEOG 550 – Geospatial Science Fundamentals (3 credits)
• EOS 758 - Earth Image Processing (3 credits) (CA: IA)
• GEOG 553 - Geographic Information Systems (3 credits) (CA: GIS)
• GEOG 664 - Spatial Data Structures (3 credits) (CA: GeoComp)

\(^2\) The US Department of Labor identified in 2005 the geospatial industry as one of the 12 sectors labeled as "new and emerging" and with "substantial growth" potential (along with e.g. IT, health care, and biotechnology).\(^2\) The geospatial technology industry has grown from a $2 billion market in 2002 to a $30 billion industry in 2005, and this growth is continuing at even faster pace, with the emergence of novel technologies like geosensor networks.
• EOS 787 - Scientific Data Mining for Geoinformatics (3 credits) (A new course, introduced for this MS program)
• EOS 684 - Select Topics in Geoinformatics & Geospatial Intelligence (3 credits)
• EOS 685 - Capstone Course in Geoinformatics (3 credits)
• EOS 799 - Master Thesis (3-6 credits)

Please note that the above listing comprises courses with two different prefixes (EOS and GEOG), but both prefixes are part of the offerings of the GGS Department. Also, it is worth mentioning that in the above sequence EOS 685 is intended as an introductory work to thesis, as students are working on the foundations of a broader problem which is expected to prepare them for and lead to their thesis work.

**Elective Courses:**

In addition to the above listed mandatory foundation courses, students will select three courses from the following three concentration areas. They cannot select more than two elective courses from one concentration area, and can leave not more than one of these areas without taking an elective course.

**Concentration Area: Image Analysis (IA)**
• GEOG 562 Photogrammetry (3 credits)
• EOS 740 Hyperspectral Image Systems (3 credits)
• GEOG 579 Remote Sensing (3 credits)
• GGS 760 Advanced Remote Sensing Applications (3 credits)
• EOS 759 Motion Imagery Analysis (3 credits)

**Concentration Area: Geographic Information Science (GIS)**
• GEOG 533 Issues in Regional Geography
• GEOG 653 Geographic Information Analysis (3 credits)
• GEOG 631 Spatial Agent-Based Models of Human-Environment Interaction
• GEOG 795 Seminar in Regional Analysis
• EOS 791 Advanced Spatial Statistics (3 credits)
• EOS 771 Algorithms and Modeling in GIS (3 credits)
• EOS 772 Distributed Geographic Information Systems (3 credits)

**Concentration Area: Computational Geoinformatics (GeoComp)**
• EOS/GEOG 650 Introduction to GIS Programming (3 credits)
• EOS 771 Algorithms and Modeling in GIS (3 credits)
• EOS 754 Earth Science Data and Advanced Data Analysis (3 credits)
• EOS 773 Interoperability of GIS (3 credits)

Students with exceptional background and demonstrated knowledge of material may request substitution of up to two mandatory courses with the approval of the Degree Coordinator. Mandatory courses may only be substituted by an elective course from the same concentration area. Final course selection requires the approval of the Degree Coordinator.
For students with exceptional circumstances (i.e. already involved through their line of work in a specific project), other, additional elective courses may be considered, if approved by the degree coordinator, in areas of advanced knowledge, i.e. advanced courses already offered in existing course sequences.

Considering SACS standard 3.6.2 *(Independent Learning in Graduate Programs)*, the above presented curriculum is clearly meeting the objectives of (1) including knowledge of the literature of the discipline and (2) ensuring ongoing student engagement in research and/or appropriate professional practice and training experiences. In the following table we present how the mandatory foundation courses are addressing these objectives:

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<th>Course</th>
<th>Knowledge of the Literature</th>
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<td>EOS 505 - Introduction to Geoinformatics</td>
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<td>EOS 799 - Master Thesis</td>
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**Table 1. Courses that Address SACS Comprehensive Standard 3.6.2**

It is easily understood that the each elective course is also addressing individually one or more of the above listed objectives.

**Admission Requirements**

Applicants to this M.S. program should hold a B.A. or B.S. degree in a discipline related to the program’s theme from an accredited university, with a minimum GPA of 3.000. Applications will be processed by the COS admission office, as per standard GMU policy. Applicants must submit a completed GMU graduate application, along with official transcripts, resume, VA domicile classification form (when applicable), and TOEFL scores if they are foreign nationals. Regarding GRE scores, the degree’s requirements will match the requirements of the GGS Department. Student applicants who have already demonstrated their skills in the area by working for a substantial period (greater than 3 years) in leading firms or agencies in geoinformatics or geospatial intelligence may get a waiver of the GRE requirements, with the approval of the degree coordinator. Letters of recommendation (2) will be required for such a waiver. Applicants should have undergraduate backgrounds that include courses in differential and integral calculus. A working knowledge of a computer programming language is a plus. When the background of an individual student does not meet the program’s requirements, remedial or preparatory courses tailored to student’s needs may be recommended.
Students enrolled in the Graduate Certificate in Geospatial Intelligence may transfer all certificate credit hours towards this MS-GGI program, as per standard GMU policies.

I.3 FACULTY

A large number of full-time faculty, primarily from the Dept. of Geography and Geoinformation Science (GGS) will be involved with this program, offering courses. They are listed below. It is worth mentioning that in addition to having excellent teaching record, these professors also have a strong research profile, with numerous competitive grants, and publications in the area of geoinformatics.

Prof. Peggy Agouris, Ph.D., 1992, The Ohio State University. Professor and Chair, Dept. of Geography and Geoinformation Science (GGS). Digital Image Analysis for Geoinformatics, Remote Sensing, Image-Based Geospatial Information Systems.

Prof. Guido Cervone, Ph.D., 2005, George Mason University. Assistant Professor, Dept. of GGS. Spatio-Temporal Data Mining, Machine Learning, Remote Sensing, Natural Hazards.

Prof. Kevin Curtin, Ph.D., 2002, University of California Santa Barbara. Associate Professor, Dept. of GGS. GIS, Location Science, Transportation, Network GIS, Resource Allocation, and Data Modeling.

Prof. Liping Di, Ph.D., 1991, University of Nebraska. Professor, Dept. of GGS. GIS, Remote Sensing, Interoperability.

Prof. Matt Rice, Ph.D., 2005, University of California Santa Barbara. Assistant Professor, Dept. of GGS. Cartography and Information Visualization, Geographic Information Systems, Behavioral Geography, and Quantitative Methods.

Prof. Anthony Stefanidis, Ph.D., 1993, The Ohio State University. Associate Professor, Dept. of GGS. Geospatial Intelligence, Digital Image and Video Analysis, Spatiotemporal Information Modeling and Analysis, GeoSensor Networks.

Prof. Nigel Waters, Ph.D., 1977, University of Western Ontario. Professor, Dept. of GGS. GIS, Transportation, Spatial and Statistical Models, Epidemiology and Crime Mapping/Analysis.


Prof. Chaowei Phil Yang, Ph.D., 2000, Peking University. Assistant Professor, Dept. of GGS. Intelligent Spatial Computing, Interoperability, Multi-Dimensional Visualization, Spatial Web Portal, and Distributed Geospatial Information Processing.

Prof. Ruixin Yang, Ph.D., 1990, University of Southern California. Associate Professor, Dept. of GGS. Geosciences, Data Analysis, Scientific Data Mining, Data Information Systems.

Prof. Wenli Yang, Ph.D., University of Nebraska. Assistant Professor, Dept. of GGS. Geography, Remote Sensing, Interoperability, Geological Applications.
I.4 ASSESSMENT

Learning Outcomes:
Our objective is to offer these students fundamental knowledge on:
• remote sensing and digital image analysis for geospatial information extraction,
• geographic information science,
• geospatial information technology, and
• the application of this knowledge to a diverse array of ever changing applications

More specifically, a graduate of this program is expected to have:
• Ability to apply knowledge of earth image processing/remote sensing, geographic information systems, geospatial information technology, and analytic processes
• Ability to find and interpret data and to conduct analysis that results in recommended actions
• Ability to function effectively in a collaborative environment
• Awareness of professional and ethical responsibilities
• Ability to communicate effectively her/his findings
• Knowledge of how human actions affect geospatial intelligence analysis
• Ability to select, use, synthesize, and demonstrate the techniques, skills, and tools necessary to solve complex geoinformatics and geospatial intelligence problems

We have a thorough plan for assessing the performance of our students and our program, and it comprises the following 2 components:

Learning Assessment:
The knowledge acquired by our students in this program is evaluated at various instances during their studies:
• During each course we assess their expertise using lab assignments and, where appropriate, through a course project that requires them to integrate knowledge and skills acquired in that particular course.
• During EOS 685 (Capstone course in Geoinformatics), students are presented with a capstone project, which transcends the borders of any specific course, requiring the synergetic use of expertise in diverse topics, and the collaboration of students. Accordingly, this capstone course provides an opportunity for students to apply the knowledge they acquired in coursework, and their analytical skills to address a realistic complex problem, and to do so in a collaborative manner. They also demonstrate their capability to communicate their findings in an efficient manner.
• During their thesis (EOS 799), students will have the opportunity to work individually in depth in a specific topic, come up with an innovative solution, and complete a large scientific task. They also demonstrate their capability to prepare longer reports communicating their findings.

Program Assessment:
The proposed program will be reviewed on the seven-year cycle typical of programs within GMU’s College of Science. Program review takes place under the guidance of the Office of Institutional Assessment and requires three semesters to complete. The outcomes of the process

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are a series of deliverables—a self-assessment report and academic plan written by program faculty and a report by a review team external to the program—and changes made to enhance the program. The Department of Geography and Geoinformation Science is scheduled for review of its programs beginning in 2011. The proposed MS in Geoinformatics and Geospatial Intelligence will also be included in the university’s 2011 reaffirmation of accreditation. Finally, the Board of Visitors will conduct its initial review of the program in Spring, 2010, four years after the program’s first offering.

Furthermore, student feedback will be collected through exit interviews (at the time of completion of their studies) and follow-up interviews of our alumni two years after they graduate. This will allow us to collect valuable information on how our program met their expectations and supported their professional development. We will also collect information from our graduates’ employers, assessing our former students’ performance in the workplace. This information will be used to make adjustments to our program as needed.

Lastly, as mentioned earlier in this proposal, GMU currently offers one of only 3 nationally accredited graduate certificate programs in geospatial intelligence (GIGC). Given the relationship of this proposed MS program with the GIGC program we expect our MS also to be automatically accredited by the US Geospatial Intelligence Foundation (USGIF) upon its launch. This accreditation process is rigorous, and is performed periodically, so this will provide another assessment mechanism for our proposed MS program.

These assessment components will be used in addition to standard GMU assessment policies (e.g. faculty evaluations) to ensure the high quality of our program.

**1.5 BENCHMARKS OF SUCCESS**

The proposed program has established the following benchmarks of success:

- 40% of admitted applicants will have a combined GRE score of 1200 or above,
- 75% of full-time students will complete the program in two years or less,
- 50% of part-time students will complete the program in three years or less,
- 75% of graduates will have earned jobs within the field or received promotions in their current job within three years after graduation from our program (excluding those who have continued their studies for a PhD degree).

While the first three benchmarks can be measured easily in-house, in order to assess the last of these benchmarks we will follow up with our program graduates using post-graduation interviews to assess their job placement situation after attending our program.

**1.6 EXPANSION OF AN EXISTING PROGRAM**

This new program can be viewed as an extension of our existing Graduate Certificate program in Geospatial Intelligence. The new MS program will benefit the Certificate students, as it will provide them an outlet to further continue their graduate studies and complete a degree.
I.7 Collaboration or Standalone Program

This is a standalone program.
II. JUSTIFICATION FOR THE PROPOSED PROGRAM

II.1 RESPONSE TO CURRENT NEEDS

Aided by the proliferation of novel spatiotemporal data capturing, modeling, and analysis approaches, geospatial intelligence is emerging as a promising and much in-demand scientific concentration area. It addresses the collection, organization, analysis, and dissemination of information about physical features, man-made structures, moving objects, people, and events, that are geo-referenced or geo-located. Accordingly, its focus is primarily on the computational approaches that support the synthesis and analysis of diverse types of such information, in order to identify and monitor complex events and phenomena that manifest themselves over space and time. While geospatial intelligence has a strong Department of Defense connotation, the principles behind it have a strong dual usage potential, addressing the needs of a broader audience, ranging for example from intelligent navigation in urban spaces to emergency response to natural and man-made disasters. Thus, the term geoinformatics is used to refer to the broader scientific area behind this proposed program.

The need for educational programs in geospatial intelligence and geoinformatics is becoming increasingly clear. For example, the sixteen federal intelligence agencies and the Director of National Intelligence have documented their growing need for expertise in geospatial intelligence, as it is essential for a variety of intelligence activities. In response to this realization, the US Geospatial Intelligence Foundation (USGIF<sup>4</sup>) has been established, and is working with these agencies to develop guidelines and curriculum content criteria to accredit programs for geospatial intelligence analysts. This led to the establishment of an accreditation procedure for programs in geospatial intelligence to ensure the quality and breadth of the academic education offered under the umbrella of geospatial intelligence.

In response to this evolution of the marketplace for geoinformatics experts, George Mason University set-up a new Geospatial Intelligence Graduate Certificate (GIGC) program in 2007. Student response has been very positive, with approximately 60 students already registered, or lined-up to pursue this program in the next 2 years. In addition to this very positive response, the academic quality of the GIGC program was recognized in 2008, as USGIF accredited the Mason program, making it one of the first 3 programs nationwide to receive this distinction.

As a natural extension of this work, we now propose a new Master of Science program in Geoinformatics and Geospatial Intelligence (MS-GGI). The program builds on, and extends our GIGC program to expand students’ primary knowledge base, and to offer advanced training in a variety of relevant topics. It comprises core and elective courses in the areas of remote sensing, geographic information science, and geospatial information technology. Through them, students will acquire analytical skills, creative thinking, and the ability to select, use, synthesize, and demonstrate both individually and collaboratively the techniques, skills, and tools necessary to solve geospatial intelligence and geoinformatics problems.

As we discuss in section II.3 of this proposal, geoinformatics has a particular importance for Northern Virginia. Firstly, we have the move in 2011 of the National Geospatial Intelligence

<sup>4</sup> www.usgif.org
Agency [NGA] to Fort Belvoir, VA. This means that over 20,000 people currently distributed throughout the DC metro area (incl. Maryland and DC) will move to the area, establishing Northern Virginia as the global epicenter of geospatial intelligence. Furthermore, our area already has the highest concentration of companies in the geoinformatics domain. Lastly, geoinformatics has been identified by the Department of Labor (see Section II.3) as one of the emerging, rapidly growing, cutting edge technology areas that will be greatly drive our national growth in the near future. Combined, these conditions create a unique educational opportunity for geoinformatics in Northern Virginia. This is a unique opportunity that we are addressing in this proposal for a new MS program in Geoinformatics and Geospatial Intelligence.

II.2 Spin-off Proposal

This is not a spin-off proposal.

II.3 Employment Demand

This proposal has a unique advantage in terms of its employment demand projections. More specifically, the US Department of Labor identified in 2003 the geospatial industry as one of the 14 sectors labeled as “new and emerging” and with “substantial growth” potential (together e.g. with IT, health care, and biotechnology)\(^5\), as part f the President’s High Growth Job Training Initiative. Thus, DoL recognized the geospatial industry as an area that is projected to add substantial numbers of new jobs to the economy (see Appendix A of this proposal). In September 2004, US Secretary of Labor Elaine L. Chao announced a series of future investments, addressing the workforce needs of the geospatial industry (see Appendix B of this proposal). The need for innovative graduate education programs in this field is stated explicitly, in order to:

- Expand the pipeline of youth entering the geospatial technology industry;
- Help alternative labor pools gain industry-defined skills and competencies;
- Enhance the capacity of educational institutions to train to industry-defined competencies

Considering traditional employment projection resources, we can consult the Department of Commerce Bureau of Labor Statistics (BLS) ‘Employment Outlook: 2006-2016’ (A. Dohm & L. Shniper) handbook. The two categories mentioned in BLS projections which are most closely related to the proposed degree are both predicted to show strong growth in the near future, thus resulting in increased employment demand\(^6\). More specifically:

- BLS predicts a very robust growth rate of 20.3% from 2006 to 2016 in category 17-1021 (cartographers and photogrammetrists)\(^7\). This growth rate is ‘much faster than the average for all occupations. Increasing demand for fast, accurate, and complete geographic information will be the main source of growth for these occupations.’
- BLS also predicts very strong growth for categories 15-1051 (Computer Systems Analysts)\(^8\) and 15-1031 (Computer Software Engineers)\(^9\) with growth rates of 29% and 38%.

\(^{5}\) [http://www.doleta.gov/BRG/JobTrainInitiative/#TargetedIndustries](http://www.doleta.gov/BRG/JobTrainInitiative/#TargetedIndustries) see Appendix A
\(^{7}\) [http://www.bls.gov/oco/ocos040.htm](http://www.bls.gov/oco/ocos040.htm)
\(^{8}\) [http://www.bls.gov/oco/ocos287.htm](http://www.bls.gov/oco/ocos287.htm)
respectively over the 2006-2016 period, both much higher than the average growth projections for all occupations. Even though these areas are more tangentially related to the proposed degree they still serve as indicators of the very positive job outlook for geoinformatics graduates.

Beyond BLS data, another indicator of the anticipated growth of geoinformatics is provided by the fact that the geospatial technology industry grew from a $2 billion market in 2002 to a $30 billion industry in 2005, and this growth is continuing at even faster pace, with the emergence of novel technologies like geosensor networks. Geographically, Northern Virginia is at the epicenter of this growth, as it has nationally the highest concentration of federal agencies and companies in the geospatial intelligence domain.

As part of this broader growth, geospatial intelligence has also expanded rapidly, with geospatial analysis becoming a key component of the intelligence community. To emphasize this need for highly qualified geospatial intelligence analysts, the US Geospatial Intelligence Foundation (www.usgif.org) is setting forth guidelines and suggestions for such programs, all of them met by our proposed program.

Northern Virginia will be particularly affected by this situation, as the National Geospatial Intelligence Agency [NGA] is set to transfer 8,500 people to Fort Belvoir, VA, by September 15, 2011. As a result of this move, a total of 22,500 new people will be transferred to the Fort around that same time period, establishing a large local community that will include a very large pool of potential students for our new MS program.

The proposed new MS program in geoinformatics and geospatial intelligence addresses these identified and emerging national and regional needs. Graduates of our program are expected to be prime candidates for positions with intelligence agencies (e.g. NGA, CIA) and various corporations working on intelligence applications (e.g. Northrop Grumman, SAIC, BAE), or state agencies involved in geoinformatics (e.g. local GIS or DoT offices).

As an indication of current demand in this field, a recent (10/18/2008) search at the Virginia Workforce Connection (http://www.vaworkconnect.com/) resulted in more than 500 job listings in geoinformatics and geospatial analysis in pay scales to over $154,000 per year, all of which can be affected directly by the proposed new MS program (see Appendix C).

### II.4 Student Demand

In Section II.3 above we presented the official US government outlook for the geospatial industry, and provided the accompanying citations. According to them, the geospatial industry is rapidly growing, and hence we do not expect student demand to be an issue of concern for this new MS program.

In addition to the above–presented government outlook, we would like to mention the following items that further demonstrate student demand for our new program:

9 http://www.bls.gov/oco/ocos267.htm
11
SAIC has recently signed a contract with GMU’s College of Science for offering our graduate certificate in geospatial intelligence (GIGC) to three cohorts of their students over the next 2 years. This brings an estimated 45-50 students into our GIGC program, in addition to the approximately 10 students that are already taking it. Most of these students plan to continue for a MS degree through the proposed new offering. Assuming that 75% of these students will continue for a MS program (a rather modest prediction), we can expect approximately 45 students to continue for this MS program during its first two years of activity (see Table below). A letter stating this interest is included in Appendix E of this program proposal.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5 (Target Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled Students</td>
<td>Graduates (agg.)</td>
<td>Enrolled Students</td>
<td>Graduates (agg.)</td>
<td>Enrolled Students</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>17</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>17</td>
<td>5</td>
<td>32</td>
</tr>
</tbody>
</table>

**II.5 DUPLICATION**

There currently exist nationwide only 3 programs in geospatial intelligence that have been accredited by the US Geospatial Intelligence Foundation. In addition to GMU’s Graduate Certificate in Geospatial Intelligence the other two programs are at Penn State University, and the University of Missouri (see Appendix D). Thus, our graduate certificate program is the only such accredited program in the Commonwealth and the Mid-Atlantic States. Similarly, our MS program will be the only of its kind in our area.

We found no existing programs in the Commonwealth. At Virginia Tech, the Civil and Environmental Engineering Department offers very few courses in areas related to the proposed program (e.g. CEE 5204 GIS Applications and CEE 5264 Analytical Photogrammetry), but they are not part of a specific graduate program in this field. The VT Geography Department offers a standard MS degree in geography (with an annual average of 5-6 graduates over the last 13 years according to http://research.schev.edu/enrollment/programmaticenrollment.asp), and there is also a Graduate Certificate in Geographic Information Technology, which is closer to the traditional Geography programs, and thus different than our program. Old Dominion University offers only a Certificate in Geographic Information Science, and Virginia Commonwealth also offers a graduate Certificate in Geographic Information Systems. Both of these programs are similar to classic geography programs, and different than our new MS program. We found no other programs in Georgetown University, George Washington, Catholic, American, or Marymount similar to the proposed one.
Outside the Commonwealth but within the broader area GMU serves, the University of Maryland at College Park offers some relevant graduate-level education through the Department of Geography. The Department of Geography offers a Master of Professional Studies in Geospatial Information Sciences, but it is not comparable to our program as it focuses primarily on geographic information systems, and is offered mainly through online means. Similarly, the Department of Meteorology at UMCP offers formal graduate degree programs in meteorology with strong emphasis in remote sensing and Earth observing.
III. PROJECTED RESOURCE NEEDS

Full-time Faculty
Current faculty of GMU’s GGS Department are able to handle the teaching loads of the new MS program. However, the Dean of the College of Science has also committed 2 full time faculty positions in the direction of geospatial intelligence and geoinformatics to allow this program to grow.

Part-time Faculty from Other Academic Units
N/A

Adjunct Faculty
Adjunct faculty may be involved in this new program in a manner similar to their involvement in standard GMU offerings (e.g. offering small components of a course in which they may have substantial expertise). We do not foresee any specific needs for this new MS program.

Graduate Assistants
The College of Science is traditionally providing its Departments with Graduate Teaching Assistant (GTA) positions, according to their teaching loads. We expect a similar support for our offerings as part of this program.

Classified Positions
The College of Science has already provided System Administration support for the new Laboratory for Geospatial Intelligence and Geoinformatics, in Room 290 of Research I.

Targeted Financial Aid
N/A

Equipment
The College of Science is already in the process of setting-up a new Laboratory for Geospatial Intelligence and Geoinformatics, in Room 290 of Research I. This state-of-the-art laboratory will be up-and-running by the beginning of Spring Semester, 2009, and will feature high-end computers for up to 25 students, high quality displays, and peripherals. Thus, it can be used for both standard graduate work by the MS program students, and for teaching courses of the MS program. This dedicated laboratory complements our existing computational resources, including numerous servers and personal computers, located throughout the Research I building. In terms of optical sensors our laboratory is equipped with various high resolution still (e.g. various Canon and Minolta cameras) and video digital cameras (e.g. SONY DCR), some with GPS geolocation capabilities, and a network of wireless surveillance video cameras (Trendnet TV-IP200W) with a server used to collect and store their feeds. Regarding software, we have at our disposal state-of-the-art software for GIS, image processing and data analysis, including the complete line of ERDAS Imagine package, Matlab, and the PCI EASI/PACE and ENVI packages. GMU has an ESRI site license, and offers a suite of Intergraph GIS and CAD software. Regarding remote sensing dedicated equipment, CEOSR also has an HRPT antenna for receiving data from AVHRR and other satellites such as SeaWiFS and the Chinese FengYun.
series and an Analytical Spectral Devices, Inc. (ASD) field portable, lightweight, 512-channel, photo-diode array spectroradiometer for hyperspectral measurements.

Library
GMU students have standard access to the latest publications in the field of geoinformatics through the University’s web-based subscriptions. Additionally, students have full use of GMU’s library system.

Telecommunications
This new program is not targeting a distance learning delivery mode, especially considering the location of GMU’s campus. However, if a need arises in the future to offer this course remotely, GMU is very well equipped to do so, with substantial videoconferencing capabilities. Mason uses a Codian IPVCR for videoconferencing, with streams viewable using QuickTime or RealPlayer. For webconferencing, GMU uses Macromedia Breeze (with VoIP functionality) with a dedicated server, allowing unlimited conferences of up to 60 people at a time.

Space
As mentioned above, Room 290 will be dedicated to activities related to the proposed MS program, complementing the already existing facilities of the College of Science (e.g. teaching rooms in Research I) and of GMU at large (e.g. computer classrooms in Innovation Hall). By having this dedicated space we will be more flexible in our planning needs.

Other Resources
No other resources will be needed.

PROJECTED RESOURCE NEEDS FOR PROPOSED PROGRAM

Part A: Answer the following questions about general budget information.

• Has or will the institution submit an addendum budget request to cover one-time costs?  
  Yes _____  No  x

• Has or will the institution submit an addendum budget request to cover operating costs?  
  Yes _____  No  x

• Will there be any operating budget requests for this program that would exceed normal operating budget guidelines (for example, unusual faculty mix, faculty salaries, or resources)?  
  Yes _____  No  x

• Will each type of space for the proposed program be within projected guidelines?  
  Yes  x  No

• Will a capital outlay request in support of this program be forthcoming?  
  Yes _____  No  x

10 http://videoconference.gmu.edu/index.htm
APPENDICES
APPENDIX A – THE PRESIDENT’S HIGH GROWTH TRAINING INITIATIVE

The President’s High Growth Job Training Initiative

http://www.doleta.gov/BRG/JobTrainInitiative/#TargetedIndustries

U.S. Department of Labor Employment & Training Administration
www.doleta.gov

The President’s High Growth Job Training Initiative

- Targeted Industries
- Initiative Outcomes

About the Initiative

President George W. Bush laid out the main objectives of his ground-breaking approach for closing skills gaps during remarks to operating engineers in Ohio on Labor Day 2003: “The High Growth Job Training Initiative in this administration is aiming to give workers the skills they need to realize their dreams. It’s a collaborative effort to help team up people with the jobs that are needed, to make sure that the changes in our economy don’t leave people behind.”

This Presidential initiative is a strategic effort to prepare workers to take advantage of new and increasing job opportunities in high growth, high demand and economically vital sectors of the American economy. Fields like health care, information technology, and advanced manufacturing have jobs and solid career paths left untaught due to a lack of people qualified to fill them. The High Growth Job Training Initiative targets worker training and career development resources toward helping workers gain the skills they need to build successful careers in these and other growing industries.

Targeted Industries

To put this approach into action, the High Growth Job Training Initiative identified 14 sectors that fit within

Investment Center

Find it in DOL
Compliance Assistance
Resources
- Find it in ETA
- Compliance Assistance
- Other Topics

What’s New
Contact Us
The President’s High Growth Job Training Initiative
- About the Initiative
- Investment Center
Targeted Industries
- Advanced Manufacturing
- Aerospace
- Automotive
- Biotechnology
- Construction
- Energy
- Financial Services
- Geospatial
- Health Care
- Homeland Security
- Hospitality
- Information Technology
- Retail
- Transportation

The President’s Community-Based Job Training Grants

- CBJT Investment Center
The President’s High Growth Job Training Initiative

http://www.doleta.gov/BRG/JobTrainInitiative/#TargetedIndustries

the following criteria:

(1) they are projected to add substantial numbers of new jobs to the economy or affect the growth of other industries; or

(2) they are existing or emerging businesses being transformed by technology and innovation requiring new skills sets for workers.

The sectors include:

- Advanced Manufacturing
- Aerospace
- Automotive
- Biotechnology
- Construction
- Energy
- Financial Services
- Geospatial Technology
- Health Care
- Homeland Security
- Hospitality
- Information Technology
- Retail
- Transportation

Initiative Outcomes

In addition to numerous industry specific solutions, ETA identified a core set of priority solution elements that are common to all 14 target industries. These elements include:

- Developing a pipeline of young workers;
- Building competency models, career ladders, and career lattices for new and incumbent workers;
- Expanding postsecondary training alternatives including apprenticeships and community colleges’ workforce development programs;
- Accessing new and/or untapped labor pools;
- Transitioning workers from declining industries;
- Developing strategies for retaining incumbent workers and updating their skills; and
- Engaging small businesses.

The High Growth Job Training Initiative is investing in national models and demonstrations of workforce solutions in these sectors designed to achieve the following outcomes:

- Targeted investment of workforce development resources

Publications Library

- The President’s High Growth Job Training Initiative Fact Sheet (pdf)

Industry Information

- Competency Models
- Profiles (by industry)
- Investment Fact Sheets (by industry)
- Reports

Other Activities and Information

- The Public Workforce System: Talent Development for Your Business (pdf)
resources and support for private and public sector partnerships to ensure the development of workers' skills in demand occupations based on industry need.

- Increased integration of community and technical college efforts with business and the public workforce system activities to meet the skills training needs of high growth industries.
- Increased opportunities for employers to use apprenticeship training as skills development methodology, combining on-the-job training and academics, to ensure a pipeline of skilled workers.
- Providing workers with paths to career enhancing opportunities in high growth occupations.
- Providing workers with paths to career enhancing opportunities in high growth occupations.
APPENDIX B – SECRETARY OF STATE ON THE WORKFORCE NEEDS OF GEOSPATIAL INDUSTRY

Geospatial Industry Information
http://www.doleta.gov/BRG/Indprof/Geospatial.cfm

Geospatial

Local Solutions with National Applications to Address Geospatial Technology Industry Workforce Needs

In September, 2004 U.S. Secretary of Labor Elaine L. Chao announced a series of investments totaling more than $6.4 million to address the workforce needs of the geospatial technology industry. In preparing over the past year, the U.S. Department of Labor hosted forums with geospatial technology industry leaders, educators, and the public workforce system.

DOL has sought to understand and implement industry-identified strategies to confront critical workforce shortages. It has listened to employers, industry association representatives, and others associated with the geospatial technology industry regarding some of their efforts to identify challenges and implement effective workforce strategies. DOL’s Employment and Training Administration is supporting comprehensive business, education, and workforce development partnerships that have developed innovative approaches that address the workforce needs of business while also effectively helping workers find good jobs with good wages and promising career pathways in the geospatial technology industry.

This set of workforce solutions is based on the geospatial technology industry’s priorities that address issues such as:

• Expanding the pipeline of youth entering the geospatial technology industry;
• Helping alternative labor pools gain industry-defined skills and competencies;
• Developing alternative training strategies, such as apprenticeship, distance learning, and accelerated training, for training geospatial technology professionals;
• Developing tools and curriculum for enhancing the skills of geospatial technology professionals for nationwide distribution;
• Enhancing the capacity of educational institutions to train to industry-defined competencies;
• Developing industry-defined career ladders and lattices and corresponding competency models and curriculum;
• Developing strategies to retain and help incumbent workers move into higher level positions; and
• Assisting transitioning individuals from declining industries to high growth industries by building on their existing skills and training them for high growth geospatial technology occupations.

The grants are intended to provide genuine solutions, leadership, and models for
partnerships that can be replicated in different parts of the country.

* The term "geospatial industry" is not all-inclusive. It may refer to mapmakers, academics, and others engaged in such activities.
APPENDIX C – RECENT JOB SEARCH SUMMARY AT VIRGINIA WORKFORCE CONNECTION

Your search found more than 500 jobs. Listed below are the 500 most recent that matched your criteria. To narrow your search, click here.

To sort on any column, click a column title.

<table>
<thead>
<tr>
<th>Date</th>
<th>Job Title / Description</th>
<th>Employer</th>
<th>Location</th>
<th>Salary</th>
<th>Source</th>
<th>Key Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/17/2008</td>
<td>Geospatial Analysis Instructor, Mid</td>
<td>Booz Allen Hamilton</td>
<td>Springfield</td>
<td></td>
<td>CORP</td>
<td>1</td>
</tr>
<tr>
<td>10/17/2008</td>
<td>Geospatial Analysis Instructor, Mid</td>
<td>Booz Allen Hamilton</td>
<td>Springfield</td>
<td></td>
<td>CORP</td>
<td>1</td>
</tr>
<tr>
<td>10/17/2008</td>
<td>Geospatial Analysis Instructor, Senior</td>
<td>Booz Allen Hamilton</td>
<td>Springfield</td>
<td></td>
<td>CORP</td>
<td>1</td>
</tr>
<tr>
<td>10/17/2008</td>
<td>Geospatial Analyst</td>
<td>Not Available</td>
<td>Mc Lean</td>
<td></td>
<td>RECT</td>
<td>1</td>
</tr>
<tr>
<td>10/16/2008</td>
<td>Geospatial MASINT Analyst</td>
<td>Planning Systems Inc</td>
<td>Reston</td>
<td></td>
<td>CORP</td>
<td>1</td>
</tr>
</tbody>
</table>
USGIF Accredits Universities under First-Ever
Geospatial Intelligence Accreditation and Certificate Program

February 5, 2008—Three national universities have received accreditation for their geospatial intelligence programs by the United States Geospatial Intelligence Foundation (USGIF). The University of Missouri at Columbia, Pennsylvania State University and George Mason University became the first schools to be accredited under USGIF’s Geospatial Intelligence Accreditation and Certificate Program, the first and only program of its kind.

“These three exceptional universities should be very proud of their courses and support of the geospatial intelligence trade craft,” said Stu Shea, USGIF president and chairman. “GMU, Mizzou and Penn State can be confident their teachings are not only relevant but also translate directly to real-world situations their students will encounter in their professional careers.”

The Geospatial Intelligence Accreditation and Certificate Program complements a college degree, supports career development and provides professional recognition to the students in a form of a completion certificate. To gain accreditation, the schools applied to the USGIF Academy and were evaluated based on the criteria established by the Foundation’s review panel. The panel of leading experts from industry, government and academia spent more than a year establishing curriculum guidelines, accreditation standards and processes for geospatial intelligence program.

“The USGIF’s accreditation efforts are an important and concrete indication of the emergence of GEOINT as a profession,” says Todd Bacastow, professor of practice for geospatial intelligence at Penn State. “Penn State University is proud to be in the forefront with the other academic institutions in this important progress.”

Colleges and universities interested in creating a geospatial intelligence program or applying for accreditation are encouraged to submit applications. The USGIF Academy will review applications twice this year, those submitted by April 30 for fall 2008 accreditation and submissions
by Oct. 31 for spring 2009 accreditation. Curriculum guidelines, requirements, applications and additional information are available on USGIF’s website at www.usgif.org.

“Our Geospatial Intelligence Accreditation and Certificate Program ensures that students studying under accredited college and university courses receive the broad set of technical and critical thinking skills along with relevant tradecraft knowledge necessary for a successful career in the geospatial intelligence community,” said Shea. “We look forward to including more higher learning institutions in the list of USGIF-accredited programs and providing greater availability to students interested in pursuing a career so important to our national security.”

USGIF is a Virginia-based non-stock, not-for-profit corporation. The Foundation is dedicated to promoting the geospatial intelligence tradecraft and developing a stronger community of interest between government, industry, academia, professional organizations and individuals whose mission focus is the development and application of geospatial intelligence data and geoprocessing resources to address national security objectives.

###
APPENDIX E – LETTER FROM SAIC STATING STUDENT DEMAND AMONG THEIR PERSONNEL FOR THE PROPOSED MS PROGRAM
December 15, 2008

Salwyn "Chip" Ferguson
Vice President and Operations Manager
Geospatial Technologies Operation
SAIC
14568 Lee Road
Chantilly, Virginia 20151

Anthony Stefanidis, PhD
Associate Professor
George Mason University
4400 University Drive, MS 642
Fairfax, Virginia 22030

Dear Dr. Stefanidis:

We deeply appreciate the effort GMU has expended in working with the Geospatial Technologies Operation (GTO) of SAIC to provide our employees with the on-site GEOINT Masters Certificate program. The importance of this program is recognized at every level of SAIC.

The GMU GEOINT Masters Certificate program, hereafter known as the program, is recognized by the United States Geospatial Intelligence Foundation (USGIF), a foundation dedicated to the geospatial intelligence tradecraft, founded and chaired by our own Group President, K. Stuart Shea. While this program initiated in our operation, we plan to make it available to employees beyond the operation as soon as possible. Further, if mutually beneficial to both GMU and SAIC, we will work to renew the contract beyond the agreed upon three cohorts (15-20 students per cohort) in order to benefit the maximum number of our employees.

Even though we are just getting started, we already have overwhelming interest from our employees in continuing their post Masters Certificate education in the proposed MS in Geoinformatics and Geospatial Intelligence program. SAIC strongly encourages our employees to pursue advanced degrees and the aforementioned program seems to fit well within our "wheelhouse." Not only will this Masters program benefit our employees, it will also prepare potential hires for the type of work they could perform within the breadth of our geospatial projects.
GTO employs over five hundred geospatial analysts throughout the country. This program relates directly to the work they do on a daily basis in support of the intelligence community and the warfighter. Everyone in our workforce can benefit from these advanced academic courses. While our staff is known for the quality geospatial products and analysis we provide, learning the theories and reasons behind their daily actions will be of direct and immediate benefit.

When evaluating our procurement options we found that GMU had the strongest geospatial program. From the wide range of courses, to the quality of the facilities, to the deep experience of the professors. I hope this program will continue to strengthen the tie between SAIC and GMU, providing an avenue for our employees to continue furthering their education through a full Masters program, and provide an entry point to work on mutually beneficial geospatial research programs.

Sincerely,

[Signature]

Selwyn "Chip" Ferguson
15 December 2008

Prof. Anthony Stefanidis
Dept. of Earth Systems & Geoinformation Sciences
George Mason University
4400 University Drive, MS 6A2
Fairfax, VA 22030
ph. (703) 993 9237
fax (703) 993 9299

Professor Stefanidis;

It is with great pleasure that the intelligence Systems Operation with Northrop Grumman Mission Systems extends our support to your effort to establish a Masters degree program at George Mason University in the geospatial discipline. It is our hope that our corporate support will help you expand the geo-informatics programs within the university.

The Intelligence Systems Operation would like to partner with you and George Mason University in the geospatial sphere. As part of this partnership, we would consider hiring current students for internships as well as degree students for full-time positions. We would be pleased to meet with juniors and seniors that possess relevant skills to discuss career opportunities and the kinds of work we perform in our organization.

I know you have been working with Mr. Brian Cummins in the geospatial arena and I would be happy to meet with you and Brian to learn more about your program its requirements. You can reach me at 703-803-5127. Please let me know how I can be of further assistance and I look forward to working with you.

Sincerely,

Phyllis Villani
Engineering Center Manager
Intelligence Systems Operation

cc: Brian Cummins
APPENDIX G – LETTER FROM THE US GEOSPATIAL INTELLIGENCE FOUNDATION (USGIF) IN SUPPORT OF THE PROPOSED MS PROGRAM

October 8, 2008

To: Professor Anthony Stefanidis

Re: Support for GMU’s new proposed M.S. program in Geoinformatics and Geospatial Intelligence

Dear Professor Stefanidis,

I am very pleased to express the strong support of the United States Geospatial Intelligence Foundation (USGIF) for George Mason University’s (GMU’s) new Master’s of Science program in Geoinformatics and Geospatial Intelligence.

USGIF’s 155 member organizations include government agencies and businesses with over 200,000 employees in the Washington, DC area. Members include leading companies in the area of geoinformatics (such as Lockheed Martin, BAE Systems, SAIC, Booz Allen Hamilton, ERDAS, GeoEye, and Digital Globe) and large government agencies (including the National Reconnaissance Office, the National Geospatial-Intelligence Agency, and the Central Intelligence Agency). USGIF members oversee or support a multi-billion dollar industry with an increasing need for training and education in geospatial sciences, geoinformatics, and related disciplines.

Education is at the core of our mission. As a not-for-profit educational foundation, USGIF strives to strengthen the community at-large and support lifelong learning that will ensure a robust cadre of professionals and a healthy tradecraft now and in the future. It is clear to us that our members will hire graduates from USGIF certificate programs, including George Mason University, and are actively seeking graduates with advanced degrees in the geoinformatics field.

As you know, USGIF is currently in advanced discussions with GMU’s leadership to provide additional support to this degree program and the Center for Geospatial Intelligence. We are developing an internal USGIF marketing and outreach plan to advertise the program and to help you understand our members’ professional development needs. As your program is part of our larger set of USGIF education initiatives, we will absolutely dedicate resources to help make the new MS program successful.

USGIF is very excited at this new program and look forward to continued collaboration with you to place your graduates in this ever-growing field.

Sincerely,

Keith M. Mashack
President, United States Geospatial Intelligence Foundation
APPENDIX H – STUDENT INTEREST SURVEY

The following survey was distributed to approximately 30 potential persons who represent potential students and/or current GMU students, inquiring about their interest in the proposed MS program. In these first two pages you may find the letter accompanying the survey (page H-2), the blank survey instrument (page H-3) and a tabulation of the responses (page H-4).
George Mason University is developing a Master of Science in Geoinformatics and Geospatial Intelligence for implementation in Spring 2010. The program comprises coursework in the three key concentration areas behind geoinformatics:

- Geographic Information Science
- Digital image analysis as it applies to geoinformatics and geospatial intelligence
- Computational principles for geoinformatics and intelligence

The MS degree requires a total of 33 credit hours, or 10 courses plus a 3-credit thesis.

As a result of successfully completing this program, students are expected to have:

- Ability to apply knowledge of earth image processing/remote sensing, geographic information systems, geospatial information technology, and analytic processes
- Ability to find and interpret data and to conduct analysis that results in recommended actions
- Ability to function effectively in a collaborative environment
- Awareness of professional and ethical responsibilities
- Ability to communicate effectively her/his findings
- Knowledge of how human actions affect geospatial intelligence analysis
- Ability to select, use, synthesize, and demonstrate the techniques, skills, and tools necessary to solve complex geoinformatics and geospatial intelligence problems

We have prepared the survey below to gauge interest in the program. Your answers to the following questions will be used in summary form only. No personally-identifiable information will be released. Please feel free to contact us at astefani@gmu.edu if you would like more information about the proposed program.

The completed survey form should be emailed back to astefani@gmu.edu within the next 2 weeks.

Thank you.

Tony Stefanidis
George Mason University is developing a [name of degree program] for implementation in [initial term]. [Brief description of program]. As a result of successfully completing this program, students should be able to: [bulleted list of learning outcomes]

We have prepared the survey below to gauge interest in the program. Your answers to the following questions will be used in summary form only. No personally-identifiable information will be released. Please feel free to contact us at [e-mail address] if you would like more information about the proposed program.

Thank you.

G-3
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would you be interested in enrolling in a program like this? (If no, then skip to question 3.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. If yes, would you prefer to attend the program on a full-time or part-time basis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Have you ever applied to an institution offering a similar program?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If so, which program, at which school?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Are you currently attending George Mason University? If so, in what program:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. FOR STUDENTS CURRENTLY IN MASON PROGRAMS AT THE SAME LEVEL: If this program had been available when you initially applied to Mason, would you have applied for admission to it?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. FOR STUDENTS WHO LEFT MASON TO PURSUE EDUCATION ELSEWHERE: If this program had been available when you completed your current program, would you have applied for admission?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. FOR STUDENTS WHO LEFT MASON BUT HAVE NOT PURSUED FURTHER EDUCATION: If this program had been available when you completed your current program, would you have applied for admission?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. In which state do you currently live?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do you plan to live in this state for the next three or four years?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Are you currently employed? (If no, then skip to 14.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. If you are employed, please identify the state in which you work.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. If you are employed, are you employed full-time or part-time?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. If you are employed, would the proposed program help you in your work?</td>
<td></td>
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<tr>
<td>14. Please feel free to provide additional comments about the program.</td>
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Summary of responses to the survey:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Not sure</th>
</tr>
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<td>Question 1</td>
<td>82%</td>
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<tr>
<td>Question 2</td>
<td>24%</td>
<td>76%</td>
<td>18%</td>
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<td>6%</td>
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<tr>
<td>Question 3</td>
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<tr>
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<td>Question 6</td>
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<td>Question 7</td>
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<td>Question 8</td>
<td>VA: 94%; MD: 6%; DC: 0%; Other: 0%</td>
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<tr>
<td>Question 9</td>
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<td>Question 10</td>
<td>88%; No: 12%</td>
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<tr>
<td>Question 11</td>
<td>VA: 100%; MD: 0%; DC: 0%; Other: 0%</td>
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<tr>
<td>Question 12</td>
<td>FT: 95%; PT: 5%</td>
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<td>Question 13</td>
<td>Yes: 100%; No: 0%</td>
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