Jacksonville State University
National Centers of Academic Excellence in Information Assurance Education (CAEIAE) Application

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Criterion 1

Outreach/Collaboration

> Extending IA beyond the normal boundaries of the University and bringing current IA practitioners into the IA Center. Provide evidence of partnership(s) in IA education with minority colleges and universities, or K-12 schools, or 2-year community colleges, or technical schools. Evidence must be in the form of an articulation agreement, Memorandum of Agreement, letters of endorsement, etc. between the schools. Articulation agreement(s) must be specific to IA programs. Partnership(s) may include: Shared curriculum and resources (IA teaching material provided); shared faculty (faculty on curriculum committee or teaching); and reciprocity of credits. (Example of evidence: memorandum of agreement between both parties). (The U. S. Department of Education references (http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst-list-tab.html) and refers to minority colleges and universities as including Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities.)

Self Assessment: 24 total met; 15 required minimum; 25 maximum

Jacksonville State University (JSU) and Gadsden State Community College (GSCC) have established a long-standing tradition of academic cooperation through shared curriculum materials and personnel. A most recent collaboration on an IA-related curriculum project is a grant proposal titled "Vertical Integration of Information Security and Assurance" which was jointly submitted by JSU and GSCC to the National Science Foundation. Additional evidence of partnership between JSU and GSCC are documented in what follows.

Criterion 1.a

> Shared curriculum (e.g., IA teaching materials provided to minority colleges/universities, or 2-year community colleges, or technical

schools, or K-12 schools) or shared faculty (e.g., Faculty on curriculum development committee and/or teaching IA at minority colleges and universities, or 2-year community colleges, or technical schools, or K-12 schools.) (Up to 5 points)

An Information Assurance literacy module is currently being shared with GSCC and can be found online at http://mcis.jsu.edu/cisa/docs/Computer_Basics.pdf.

Networking projects that are currently being shared between JSU and GSCC are the following:

- Systems Reconnaissance

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P01Recon.pdf

- Packet Capture

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P02PacketCap.pdf

- Computer Forensics

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P03Forensic.pdf

- Intrusion Detection

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P04IDS.pdf

- Penetration Testing

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P05PenTest.pdf

Criterion 1.b

Reciprocity of credits (Example: Accepting academic credit in IA courses from minority colleges and universities, or 2-year community colleges, or technical schools.). Evidence in the form of written agreements must demonstrate that IA-related courses from the above types of schools are accepted for credit at the applying college/university. (Up to 5 points)

Jacksonville State University, like all 2-year and 4-year colleges and universities in Alabama, participates in an articulation agreement finalized in 1999 by the Alabama Articulation and General Studies Committee (AGSC) (http://stars.troy.edu/agsc/agsc.htm). Under this system, all freshman- and sophomore-level general studies course credit is transferable among all public institution of higher learning in Alabama. The following four IA-related courses fall under this agreement, with their articulated course numbers in parentheses:

- CS 201 — (CIS 146) Intro to Information Technology
- CS 230 — (CIS 201) Fundamentals of Computing
- CS 231 — (CIS 251) Computer Programming I
- CS 232 — (CIS 252) Computer Programming II

Criterion 1.c

> Use of distance education technology and techniques to deliver IA courses. (Distance education includes live/delayed broadcasts, videotapes/CDs, lectures, and web-based IA courses.) (Up to 5 points)

Jacksonville State University offers several IA courses using distance learning methods. These courses are listed below, along with the page number of the distance learning section of that course as listed in the Spring 2008 or Fall 2008 course offering booklet. (The Spring 2008 course offering booklet can be found online at http://www.jsu.edu/schedule/spring_2008.pdf. Likewise, the Fall 2008 booklet is available at http://www.jsu.edu/schedule/fall_2008.pdf. Note that sections that are taught via distance learning techniques are denoted by a "WWW".)

- CS 201 — Intro to Information Technology (Fall 2008, pg. 10)
- CS 307 — Management of Information Security and Forensics (Fall 2008, pg. 11)
- CS 470 — Computer Security (Spring 2008, pg. 11)
- EM 411 — Disaster Response and Recovery (Fall 2008, pg. 20) (The EM courses listed here will be cross-listed as Computer Science courses beginning in Fall 2009.)
- EM 451 — Disaster Planning (Fall 2008, pg. 20)
- EM 461 — Critical Infrastructures (Spring 2008, pg. 20)

Criterion 1.d

> Sponsorship of state, regional, or national IA curriculum workshops, colloquia, etc. (Example: sponsorship of workshops for K-12, community colleges, technical schools, state homeland security, industry, etc.) (Up to 5 points)

- Numb3rs at JSU (http://mcis.jsu.edu/images/stories/news/workshop.ppt) — An annual summer workshop for K–12 educators and administrators dealing with various applications of technology and IA-related topics for the classroom
  - Summer 2007 (http://www.jsu.edu/news/jan_june2007/WorkshopFlyer5-21-07.ppt)
  - Summer 2008 (http://www.jsu.edu/news/jan_june2008/05212008c.html)
- Multiple visits to regional high schools promoting our program and CS/CIS careers, which include IA-related opportunities. Most recent visits include the following:

  - Handley High School, Roanoke, AL. September 14, 2007
  - North Jackson High School, Stevenson, AL. September 26, 2007
  - Benjamin Russell High School, Alexander City, AL. September 27, 2007
  - Douglas High School, Douglas, AL. October 12, 2007
  - Westbrook Christian Academy, Rainbow City, AL. October 18, 2007
  - Oxford High School, Oxford, AL. November 16, 2007
  - Christian Faith Acaedmy, Anniston, AL. September 16, 2008
  - Geraldine High School, November 5, 2008
  - Holly Pond High School, November 7, 2008

- Invited talks
  - G. Francia, "US Security Regulations and Compliance Toolkit," Legal Frameworks for Information and Communications Technologies Conference and Workshop. Sliema, Malta (May, 2007)
  - G. Francia, "Digital Forensics," Legal Frameworks for Information and Communications Technologies Conference and Workshop. Sliema, Malta (May, 2007)
  - G. Francia, "Digital Forensics and Investigation," US Embassy, Floriana, Malta (May, 2007)

Criterion 1.e

> Providing students with access to IA practitioners. (Example: guest lecturers working in IA industry or government, faculty exchange program with industry and/or government, etc.) (Up to 5 points)

The following IA practitioners have spoken to our science students within the past year:

- Disaster Recovery. March 2008, Major General Warren C. Edwards, Director of the Southeast Region Research Initiative, Oak Ridge National Laboratory
- Network Administration. April 2008, Jennifer Justice Christopher, Network Administration Team Leader, Lockheed Martin, Huntsville, AL
- Crisis Management Workshop (http://www.jsu.edu/news/jan_june2008/first.html). Summer 2008, Jane Kushma, American Red Cross
- Identity Theft (http://www.jsu.edu/news/July-Dec2008/10142008d.html). October 2008, Isaac Chappell, Alabama Cooperative Extension Service, Calhoun County, AL

- Army Information Assurance and Regulations (http://www.jsu.edu/news/July-Dec2008/10232008d.html). October 2008, Randall T. Heflin, Information Assurance Specialist, Anniston Army Depot, Anniston, AL

Criterion 2

IA as a Multidisciplinary Science

> The academic program demonstrates IA is not treated as a separate discipline, but as a multidisciplinary science with the body of IA knowledge incorporated into various disciplines.

Self Assessment: 20 total met; 10 required minimum; 20 maximum

Criterion 2.a

> Evidence that IA is taught as modules in existing non-IA courses and that non-technical/non-IA students are being introduced to IA (i.e., IA topics are covered in courses for managers/leaders. For example, the business school provides instruction on security countermeasures for IT systems to help assure continuity of operations.). (2 points per course; 10 points maximum)

Several non-IA courses make use of IA modules. They are listed below along with their page numbers from the JSU Fall 2007–Spring 2009 Undergraduate Catalog. (The JSU Undergraduate Catalog can be found online at http://www.jsu.edu/depart/undergraduate/catalog/.):

- CS 201 — Intro to Information Technology, basic IA concepts (e.g., phishing, malware, password security) (pg. 124)

  > **Introduction to Information Technology (3).** A brief exposure to theory and operations of information technology. Concepts presented include computer systems, hardware and software. Hands-on experience with selected productivity software packages. (Department credit not given for CS/CIS majors and/or minors.)

- CS 450 — Computer Networking, TEMPEST (pg. 127)

  Computer Networking (3). *Prerequisite: CS 350.* Study of computer interconnection and protocols with emphasis on network layers, error detection/correction, data compression, and topologies. Project approach utilized.

- CS 462 — Ethics and Legal Issues, intellectual property (pg. 127)

  Ethics and Legal Issues (3). *Prerequisite: CS 310 or permission of instructor.* An overview of legal, ethical, global and professional issues in computing.

- CJ 303 — Intro to Security/Loss Prevention, physical security (pg. 85)

  Introduction to Security/Loss Prevention (3). A study of the private industry including origins, administration, personnel, physical aspects, loss prevention, variations in security systems, and career opportunities.

- CJ 400 — Protective Systems, physical security (pg. 86)

  Protective Systems (3). *Prerequisite: CJ 303.* The criminal threat, protective system concept; systems configuration and cost benefit analysis of currently available protective systems.

- MKT 395 — Business-to-Business Marketing, Cyber Law (http://www.jsu.edu/depart/ccba/jthomas/mkt395.htm)

  Business-To-Business Marketing (3). *Prerequisite: MKT 301.* An analysis of marketing strategy as it applies to firms that engage in the production of finished products or services, including an examination of the buying behavior of profit and non-profit-making enterprises, as well as governmental agencies and the impact of e-commerce on these enterprises and processes. (formerly MKT 363) (May not be taken for credit if student has completed MKT 363 - Industrial Marketing)

Criterion 2.b

Non-IA courses encourage papers in IA topics or projects. Provide titles of thesis, dissertation, or projects in IA. (Example: Criminal Justice encourages Forensics as a paper topic or Business Management encourages return on investment studies in IA security.) If the course does not require a paper or project, then provide a syllabus demonstrating that IA topics are covered. (2 points per paper/project; 10 points maximum)

- CS 309 — Intro to E-Commerce

  - Google Hackers
  - MySpace Phishing
  - Societe Generale Hacker Trader

- CS 450 — Computer Networking
  - Developing and Implementing a Network Security Policy
  - Web, IP, and DNS Spoofing
  - Network Security Monitoring Processes and Tools
  - Network Security Visualization
  - Remote Access Vulnerability and Solutions
  - Wireless Network Security
  - Authentication and Digital Certificates
  - Intrusion Detection and Prevention
  - Secure Protocols and Encryption Algorithms
  - Secure Socket Layer and Transport Layer Security
  - IP Security
  - Electronic Mail Security
  - Firewall Design Principles
  - Network Management Security/SNMP

- CS 462 — Ethics and Legal Issues
  - David Becker and Jay Snellen, III, "Selling Personal Information"
  - "Identity Theft"
  - Justin Barno, "Student researching AL-Qaida tactics held for six days", May 2008
  - Rachel Pugh, "Seattle Man Indicted for ID Theft Using Computer Sharing Programs", Fall 2007
  - Rachel Pugh, "U.S. Says Foreign Nations Seek Black Market Military Technology", Fall 2007
  - "Criminal Botnet Stumps for Ron Paul, Researchers Allege", Fall 2007
  - Matt Cowart, "How Close is World War 3?", Fall 2007
  - Matt Cowart, "The Evolution of antivirus software", Fall 2007
  - Matt Cowart, "The top 10 reasons Web sites get hacked"
  - Matt Cowart, "Calculating the Costs of Cyber Crime", Fall 2007
  - Ben Rankin, "Hacker Kept on NDS Payroll After Accused of Piracy", May 2008

– Ben Rankin, “TorrentSpy Ordered to Pay $110 Million in Piracy Case”, May 2008
– “Spain Arrests 5 Suspects of Hacking US Government Web Pages”, May 2008
– Stephen Jones, “Hacking Your Network’s weakest Link: You”, Spring 2008
– Stephen Jones, “Inside Risks: The Physical World and the Real World”, Spring 2008
– “Social Networking Sites Pose Huge Security Risks, Say Experts”, Spring 2008
– “Hackers Decrypt Computers by Freezing Memory Chips”, Spring 2008
– Matt Cowart, “Facial Recognition: What Is It and Should We Use It?”, Fall 2007
– Terri Cranford, “The Patriot Act”
– Dorothy Brown and Ali Sullivan, “Cyberterrorism”, Summer 2005
– Charissa Flag, “Internet Security for Children: Why is Safety on the Internet Important, Especially for Children?”
– Phillip Alldredge and Valene Singleton, “Digital Millennium Copyright Act”

Criterion 3

Practice of IA Encouraged Throughout the University

> Practice of IA encouraged throughout the University: The academic program demonstrates how the university encourages the practice of IA, not merely that IA is taught. (An example of a government-based IA security plan may be found at http://csrc.nist.gov/publications/nistpubs/800-18-Rev1/sp800-18-Rev1-final.pdf. A paper on effectively teaching how to write a security plan may be found at http://csrc.nist.gov/organizations/fissea/2005-conference/presentations/Clark/Clark-paper.pdf. (These are examples only and are not intended to replace an existing university security plan.)

Self Assessment: 25 total met; 17 required minimum; 25 maximum

Criterion 3.a

> Provide a link to the University/Departmental IA security plan. (10 points; required)

Jacksonville State University's IA security plan can be found online at http://www.jsu.edu/dit/acns/documents/JSU_IT_Policies_and_Procedures.pdf.

Criterion 3.b

> University designated Information Systems Security Officer. Provide name, position and job description for person or persons responsible for information security. (5 points required)

The Information Systems Security Officer for Jacksonville State University is Sean Ponder. Sean is the Director of Academic Computing and Network

Support (ACNS). (ACNS staff can be found online at http://www.jsu.edu/dit/acns/general/staff.html.)

Criterion 3.c

> Provide evidence of the implementation of the University/Departmental IA security plan to encourage IA awareness throughout the campus. (Example: Students and faculty are required to take computer based training or on-line tutorials; a security banner statement is present on university or department computers; security related help screens are available; university-wide seminars are held on the importance of IA, etc. (2 points per item; 2 points minimum; 10 points maximum)

- A self-paced basic IA tutorial and accompanying quiz is hosted by the Center for Information Security and Assurance and is available at http://mcis.jsu.edu/cisa/tutorials/basic-ia.htm.
- A security bulletin is in place on our university email system (http://gem.jsu.edu)
- IA-related workshops are continously offered to faculty and staff. Recent and upcoming workshops are:
  - November 17, 2008. Family Education Rights and Privacy Act (FERPA) Compliance Webcast. FERPA Safety/Security Issues
  - November 20, 2008. FERPA Compliance Webcast. Managing Records and Training Faculty.
  - January, 2009. Tracking Lost Computers and Encrypting Data. Academe Workshop.

Criterion 4

Student-based IA Research

> The academic program encourages research in IA. Provide examples. This criterion focuses on *student*-based research and is important because research fuels the relevancy and currency of IA curricula.

Self Assessment: 32 total met; 20 required minimum; 40 maximum

Criterion 4.a

> Program with IA focus has thesis, dissertation, student papers, or project requirements. Focus areas include declared majors, declared minors, established certificates of study within a major, and produce research papers/projects. Provide titles and dates of thesis, dissertation, student papers, or projects in IA within 3 years of application. (2 points per paper/project; 20 points maximum)

Several undergraduate students have been involved in research projects funded by NSF. One project, titled "Visualization and Management of Digital Forensic Data" entailed researching, designing, and developing a forensic data visualization and management system that is greatly needed by computer security researchers and practitioners. This project exposed our team of three women undergraduates to the challenges of independent research, analytical thinking, applied software engineering practices, and project management.

The following are sample student papers/presentations:

- Guillermo Francia, Monica Trifas, Dorothy Brown, Rahjima Francia, and Chrissy Scott, "Visualization and Management of Digital Forensic Data", Proceedings of the 2006 Information Security Curriculum Development Conference, Kennesaw State University, Georgia, USA, September 22–23, 2006.
- G. Francia, M. Trifas, D. Brown, R. Francia, and C. Scott, "Visual Data Mining of Log Files", Proceedings of the International Joint Conferences

on Computer, Information, and Systems Sciences, and Engineering, E-conference, December 4–14, 2006.

- G. Francia, M. Trifas, D. Brown, R. Francia, and C. Scott, "Visual Data Mining of Log Files", College of Arts and Sciences Symposium, Jacksonville State University, February 14–15, 2007.

- G. Francia, M. Trifas, D. Brown, R. Francia, C. Scott, "Forensic Data Visualization System: Improving Security through Automation", Proceedings of the Computer Security Conference, Myrtle Beach, South Carolina, USA, April 12–13, 2007.

- M. Trifas, D. Brown, R. Francia, "Building an Automated Computer Forensic Visualization System", Proceedings of the 11th World Multi-Conference on Systemics, Cybernetics and Informatics, vol. IV, p. 265–270, Orlando, Florida, USA, July 8–11, 2007.

- M. Yang, M. Trifas, N. Bourbakis, N., C. Cushing, "A Robust Information Hiding Methodology in Wavelet Domain", Proceedings of the 2007 Conference on signal and Image Processing (SIP 2007), Honolulu, Hawaii, USA, August 20–22, 2007.

- M. Yang, M. Trifas, C. Truitt, and G. Xiong, "Wavelet Domain Video Information Embedding", submitted to the 12th Multiconference on Systemics, Cybernetics and Informatics, (WMSCI 2008), Orlando, Florida, USA, June 29–July 2, 2008.

The following courses require student research papers on IA topics:

- CS 450 — Computer Networking
  - Developing and Implementing a Network Security Policy
  - Web, IP, and DNS Spoofing
  - Network Security Monitoring Processes and Tools
  - Network Security Visualization
  - Remote Access Vulnerability and Solutions
  - Wireless Network Security
  - Authentication and Digital Certificates
  - Intrusion Detection and Prevention
  - Secure Protocols and Encryption Algorithms
  - Secure Socket Layer and Transport Layer Security
  - IP Security
  - Electronic Mail Security
  - Firewall Design Principles

  - Network Management Security/SNMP

- CS 462 — Ethics and Legal Issues
  - Rachel Pugh, "Seattle Man Indicted for ID Theft Using Computer Sharing Programs", Fall 2007
  - Matt Cowart, "The Evolution of antivirus software", Fall 2007
  - Matt Cowart, "Calculating the Costs of Cyber Crime", Fall 2007
  - Ben Rankin, "TorrentSpy Ordered to Pay $110 Million in Piracy Case", May 2008
  - Matt Cowart, "Facial Recognition: What Is It and Should We Use It?", Fall 2007
  - Charissa Flag, "Internet Security for Children: Why is Safety on the Internet Important, Especially for Children?", May 2008

Criterion 4.b

> List IA courses that require research paper(s) or virtual/physical lab project(s). Provide IA course titles within 3 years of application. (2 points per course; 20 points maximum)

A great many of the upper-division (300- and 400-level) Computer Science courses require a project or a technical paper for completion of the course. Sample courses and titles of corresponding projects and papers are given below.

- CS 307 — Management of Information Security/Forensics

  > **Management of Information Security and Forensics (3).** *Prerequisite: CS 201.* Study of information security and digital forensics using practical case studies. Emphasis is on developing security policies, security management and practices, utilization of digital forensic tools and techniques, risk management, security project management, and protection mechanisms. Major components of the course are hands-on projects on digital forensic investigation and security management case studies.

- CS 470 — Computer Security

  > **Computer Security (3).** *Prerequisite: CS 350.* Study of network security architectures and models, cryptography, authentication and authorization protocols, secure application and systems development, and federal regulations and compliance. Emphasis is on security professional certification.

- CS 570 — Advanced Computer Security

- EM 411 — Disaster Response and Recovery

  Disaster Response and Recovery (3). *Prerequisites: EM 301.* How people, groups, organizations, communities and governments manage disasters in the immediate aftermath and recover from their effects, including social, physical, business, and infrastructure problems as well as intra and inter-organizational issues.

- EM 451 — Disaster Planning

  Disaster Planning (3). *Prerequisite: EM 301.* Engages students in elements of effective disaster planning and various types of emergency plans.

- EM 461 — Critical Infrastructures

  Critical Infrastructures (3). Identifies what constitutes critical infrastructure including cyber as well as physical infrastructure. Evaluation of strategies for promoting vulnerability assessments and risk reduction, and protection of critical infrastructures are examined.

Criterion 5

Faculty Active in Current IA Practice and Research

It is clearly demonstrated that the faculty is active in current IA practice and research, contributes to IA literature, and are members of IA professional societies or attend professional IA conferences. Substantiate depth and length of faculty expertise through submission of biographies.

Self Assessment: 26 total met; 20 required minimum; 55 maximum

Criterion 5.a

Peer reviewed publications – papers (electronic or traditional) on IA as evidenced in refereed journals or conference proceedings within the past 3 years. Provide links to access papers. (3 points per paper; 15 points maximum)

- M. Yang, M. Trifas, N. Bourbakis, and J. Rogers, "Secure Information Delivery through High Bitrate Data Embedding within Digital Video Contents", submitted for publication to Elsevier Journal of Signal Processing: Image Communication.
- Guillermo Francia, Monica Trifas, Dorothy Brown, Rahjima Francia, and Chrissy Scott, "Visualization and Management of Digital Forensic Data", Proceedings of the 2006 Information Security Curriculum Development Conference, Kennesaw State University, Georgia, USA, September 22–23, 2006.
- G. Francia, M. Trifas, D. Brown, R. Francia, and C. Scott, "Visual Data Mining of Log Files", Proceedings of the International Joint Conferences

on Computer, Information, and Systems Sciences, and Engineering, E-conference, December 4–14, 2006.

- G. Francia, M. Trifas, D. Brown, R. Francia, and C. Scott, "Visual Data Mining of Log Files", College of Arts and Sciences Symposium, Jacksonville State University, February 14–15, 2007.
- G. Francia, M. Trifas, D. Brown, R. Francia, C. Scott, "Forensic Data Visualization System: Improving Security through Automation", Proceedings of the Computer Security Conference, Myrtle Beach, South Carolina, USA, April 12–13, 2007.
- M. Trifas, D. Brown, R. Francia, "Building an Automated Computer Forensic Visualization System", Proceedings of the 11th World Multi-Conference on Systemics, Cybernetics and Informatics, vol. IV, p. 265–270, Orlando, Florida, USA, July 8–11, 2007.
- M. Yang, M. Trifas, N. Bourbakis, N., C. Cushing, "A Robust Information Hiding Methodology in Wavelet Domain", Proceedings of the 2007 Conference on signal and Image Processing (SIP 2007), Honolulu, Hawaii, USA, August 20–22, 2007.
- M. Yang, M. Trifas, C. Truitt, and G. Xiong, "Wavelet Domain Video Information Embedding", submitted to the 12th Multiconference on Systemics, Cybernetics and Informatics, (WMSCI 2008), Orlando, Florida, USA, June 29–July 2, 2008.

Criterion 5.b

Published books or chapters of books on Information Assurance. Books/chapters must focus on IA and have been published within the last 5 years. Provide title, authors and date published. ID specific chapters if authoring a chapter of a book. (5 points per book; 1 point per chapter; 15 points maximum)

N/A

Criterion 5.c

University is awarded grants/funding for IA education and/or research development or lab equipment. Provide synopsis of IA related grants, funding, equipment donations, or other funding to include date and approximate monetary value for the past 5 years. (2 points per award; 20 points maximum)

- Integration of Wireless Technologies into an Undergraduate Networks Exploration Laboratory ($59,500). Funded by the National Science Foundation (NSF) under grant award #0125635. (2004–2007): Funding supports the procurement of wireless equipment, software, and supplies for wireless technology curriculum development, which includes IA-related topics

- Enhanced Mathematics, Computer, and Engineering Technology Scholarship II (EMCETS II) Project ($500,000). Funded by the National Science Foundation (NSF) under DUE grant award #0726486. (January 2008–December 2013): Funding provides financial support to students in the STEM disciplines in which the majority of the students are majoring in IA-related disciplines

- Fulbright Scholarship Lecture Award to Malta ($24,500). Funded by the Council for International Exchange of Scholars (CIES). (January 2007–June 2007): Scholarship award funds the teaching, research, and curriculum development of computer and network security courses at the University of Malta and Malta College of Arts and Sciences

- Visualization and Management of Digital Forensic Data ($9,500). Funded by the National Science Foundation (NSF). (August 2006–May 2007): The project focused on researching, designing and developing a forensic data visualization and management system that is greatly needed by computer security researchers and practitioners. The project exposed a team of three undergraduates to the challenges of independent research, analytical thinking, applied software engineering practices, and project management. The forensic data visualization system collates the data, transforms it to visual form and generates a report. This report can be used to provide early warnings of a potential or existing breach of security and performance tribulations. The second component of the project is the design and implementation of a log data management system. The major functionality of the log data management system is to gather, catalog, preserve, and safeguard system and security log information. Log data management provides an audit trail of user activity to aid in regulatory compliance while reducing network downtime.

- Securing Patient Information in Medical Images ($7,500). Funded by the National Science Foundation (NSF). (August 2008–May 2009): The Health Insurance Portability and Accountability Act (HIPPA) requires that medical providers and insurance companies implement procedures and policies to protect patients medical information. Areas to be specifically addressed include ensuring that confidential data is secured during electronic transmission, and that access is limited only to authorized personnel. In this project, the goal was to design a security scheme to protect patient information while making the information readily accessible when necessary.

Criterion 5.d

> Faculty members are engaged in and/or initiate student IA programs (Example: faculty-driven student discussion groups, IA clubs, lunch bunch, etc.) within the last 3 years. (1 point per program; 5 points maximum)

The Center for Information Security and Assurance (CISA) sponsors an informal weekly discussion on current security topics. Upcoming discussions can be found at http://mcis.jsu.edu/cisa/index.php?option=com_content&view=category&layout=blog&id=50&Itemid=71.

Criterion 5.e

> Provide links to biographies to substantiate depth and length of faculty expertise. (required)

- Guillermo Francia, III (http://mcis.jsu.edu/faculty/gfrancia)
- Dr. Monica Trifas (http://mcis.jsu.edu/faculty/atrifas)
- Dr. Aaron Garrett (http://mcis.jsu.edu/faculty/agarrett)
- Dr. Jane Kushma (http://iep.jsu.edu)
- Dr. John Spain (http://iep.jsu.edu)
- Dr. Andrew Ciganek (http://mcis.jsu.edu/faculty/aciganek)
- Dr. Sri Krishnaprasad (http://mcis.jsu.edu/faculty/skp)
- Dr. David Thornton (http://mcis.jsu.edu/faculty/thornton)
- Dr. Ming Yang (http://mcis.jsu.edu/faculty/myang)
- Dr. Chi-Chin Chao (http://mcis.jsu.edu/faculty/cchao)
- Ms. Cindy Jensen (http://mcis.jsu.edu/faculty/cjensen)
- Dr. James Thomas (http://www.jsu.edu/depart/ccba/jthomas)
- Dr. Jeffrey Zanzig (http://www.jsu.edu/depart/ccba/jzanzig)

Criterion 6

IA Resources

> The faculty and students have access to IA resources and reference materials.

Self Assessment: 15 total met; 8 required minimum; 15 maximum

Criterion 6.a

> Provide evidence that subscription-based IA journals are available for student and faculty use. (Example: Safari, Merlot, etc.) (Up to 5 points)

The Houston Cole library at Jacksonville State University contains 409 titles dealing with computer security in its circulating collection, as detailed in Table 6.1.

A complete list of Jacksonville State University's library collection of IA-related journals and periodicals, in printed or electronic format, is available on the Center for Information Security and Assurance website (http://mcis.jsu.edu/cisa/index.php?option=com_content&view=article&id=80&Itemid=89). A sampling of this journal collection is given below:

- Information Systems Security — Academic Search Premier
- IEEE Security and Privacy
- Computers and Security — Elsevier Science Direct Online
- Digital Investigation — Elsevier Science Direct Online
- InfoSecurity — Elsevier Science Direct Online
- Network Security — Elsevier Science Direct Online
- Computer Fraud and Security — Elsevier Science Direct Online

Call numbers	Subject Headings	Holdings
QA76.9.A25	Access control. Computer security (includes Computer Hackers, hacking, Cryptography)	176
QA76.9.M65	Electronic Data Processing. Moral and Ethical Aspects. Computers. Moral and Ethical Aspects	11
QA 268	Cryptography	16
HF5548.37	Security measures (Computer security) Data Recovery. Disaster Recovery. Electronic data processing departments Security measures.	8
HD30.38	Computer network security. Business enterprises Computer networks Security measures (for e-business, e-commerce)	14
HV6772–HV6773.3	Computer crimes	56
HV8079.C65	Computer crimes (cybercrime, cyber forensics, Investigation)	19
TK5105.59	Computer networks. Security Measures	109
Total		**409**

Table 6.1: Jacksonville State University library book holdings for Computer Security

- Computer Law and Security Report — Elsevier Science Direct Online
- International Journal of Network Management — ACM Digital Online
- ACM Transactions on Information and System Security — ACM Digital Online
- Designs, Codes and Cryptography. An International Journal — American Mathematical Society, Springer
- Journal of Discrete Mathematical Sciences and Cryptography — American Mathematical Society
- International Journal of Information Security and Privacy — Academic OneFile
- Journal of Computer Security — Academic Search Premier
- Proceedings of the ACM Conference on Computer and Communications Security — ACM Digital
- Proceedings of the ACM Workshop on Formal Methods in Security Engineering — ACM Digital
- Information Security Technical Report — Science Direct Journals

Criterion 6.b

> Demonstrate that hyperlinks to key IA web sites are provided in course syllabus and/or professors web page or provided to students during class instruction. (Up to 5 points)

Key IA web sites can be found on faculty web pages listed below:

- Guillermo Francia, III (http://mcis.jsu.edu/faculty/gfrancia)
- Aaron Garrett (http://mcis.jsu.edu/faculty/agarrett)
- Monica Trifas (http://mcis.jsu.edu/faculty/atrifas)

Criterion 6.c

> Demonstrate that physical and/or virtual IA labs and equipment are available and used for hands-on learning (provide examples of student lab projects/exercises/case studies – syllabus, links to assignments, etc.). (Up to 5 points)

Students in the Computer Security (CS 470) course make use of the Center for Information Security and Assurance (CISA) facilities (http://mcis.jsu.edu/cisa/index.php?option=com_content&view=category&layout=blog&id=36&Itemid=85) to accomplish projects such as the following:

- Systems Reconnaissance

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P01Recon.pdf

- Packet Capture

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P02PacketCap.pdf

- Computer Forensics

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P03Forensic.pdf

- Intrusion Detection

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P04IDS.pdf

- Penetration Testing

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P05PenTest.pdf

- Security Visualization

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P06Visualization.pdf

- Vulnerability Analysis

  http://mcis.jsu.edu/faculty/gfrancia/cs470/P07VATermProject.pdf

Criterion 7

IA Academic Program is Robust and Active

> Academic program, within a nationally or regionally accredited 4-year college or graduate-level university, has an area of study or focus area in IA. Identify the courses required for each area; provide syllabus, enrollment data for current academic year (not projected) and actual graduation data (not projected) for the past two academic years. Courses must be verifiable through online course catalog.

Self Assessment: 25 total met; 15 required minimum; 45 maximum

The current course catalog is available online at http://www.jsu.edu/depart/undergraduate/catalog/pdf/2007-09/arts_sciences.pdf.

Criterion 7.a

> Focus on IA at the BS level.

Criterion 7.a.1

> Enrolled (current academic year) (Up to 10 points if up and running)

We currently have 10 students enrolled in the Computer Science with Information Assurance (CS-IA) program and in the Computer Information Systems with Information Assurance (CIS-IA) program.

Criterion 7.a.2

> Graduated (past 2 academic years) (Up to 5 points)

Our programs with concentrations started during the academic year 2007–2008, so we do not have any graduate yet with the IA concentration.

Criterion 7.b

Focus on IA at the MS level.

Criterion 7.b.1

Enrolled (current academic year) (Up to 10 points if up and running)

We currently have 9 students enrolled in the Computer Systems and Software Design with Information Assurance (CSSD-IA) program.

Criterion 7.b.2

Graduated (past 2 academic years) (Up to 5 points)

- Velkour, Sirish. Thesis title: "Network Intrusion Detection Using Oracle Data Miner." August, 2006.
- Nguyen, Vu. Thesis title: "A Data Mining and Visualization Approach to Host-based Intrusion Detection." April, 2007.
- Uddin, Mezbah. Thesis title: "Security Analysis of Stringfellow Memorial Hospital's Network ." April, 2007.
- Zanzig, Jeffrey. Thesis title: "Use of an Expert System for Ensuring Organizational Compliance with Legislation Concerning Technological Security." December, 2008.
- Wade, Jane. Thesis title: "A Web Vulnerability Assessment of Jacksonville State University's Public Presence." December, 2008.

Criterion 7.c

Focus on IA at the Ph.D. level.

Criterion 7.c.1

Enrolled/declared (current academic year) (Up to 10 points if up and running)

N/A

Criterion 7.c.2

Graduated (past 2 academic years) (Up to 5 points)

N/A

Criterion 8

Center for IA Education

> The University has a declared "center" for IA education or a center for IA research from which IA curriculum is emerging. The center may be school- or university-based. (Example: The Computer Science Department has an officially designated "Center for IA Studies" with a clear link to and sponsorship by the College of Engineering Sciences, with a charter signed at least at the College of Engineering level.) Provide documentation of the designation of the Center (e.g. the charter), signed by the Dean or higher, and the mission statement.

Self Assessment: 35 total met; 20 required minimum; 35 maximum

Criterion 8.a

> Show formal documentation of the designation of the IA "Center". (10 points; required)

The charter that establishes the Center of Information Security and Assurance (CISA) within the MCIS department is available online at http://mcis.jsu.edu/cisa/charter.pdf. In addition, another IA center, the Institute for Emergency Preparedness (IEP), was established at JSU in 1999. The IEP offers a Bachelor of Science Degree in Emergency Management. The degree is designed to prepare students for careers related to emergency and disaster management in local, state, or federal government, business, and volunteer organizations.

Criterion 8.b

> Provide the hyperlink to the "Center". (5 points; required)

The Center for Information Security and Assurance (CISA) has a web presence at http://mcis.jsu.edu/cisa. Likewise, the Institute for Emergency Preparedness (IEP) can be found online at http://iep.jsu.edu.

Criterion 8.c

> Demonstrate the "Center" web site is active/current: contains links to key IA resources such as other academic institutions, government sites, conferences, workshops, IA news, etc. (5 points minimum; 20 points maximum)

Valuable IA resources can be found on the CISA site at http://mcis.jsu.edu/cisa/index.php?option=com_weblinks&view=category&id=49&Itemid=67.

Criterion 9

Number of IA Faculty and Course Load

> University IA faculty consists of a sufficient number of full time IA faculty members and additional faculty members (may be part-time, adjunct, visiting professor, etc.) teaching at least one IA course. (For the purposes of this document full-time faculty may be defined as a professor dedicated to teaching 3 IA courses per semester, or 2 IA courses with research, or 1 IA course with research and with advisees at Master or Doctoral Level). Shared and cross-departmental appointments for part-time and adjunct faculty can be counted. This may include institutional agreements for cooperative use/exchange of adjunct faculty from/between universities. This criterion requires a letter signed by the Dean or higher identifying faculty and teaching workload and a link to a biography or curriculum vitae for each faculty member.

Self Assessment: 30 total met; 20 required minimum; 40 maximum

Criterion 9.a

> Identify by name full-time employee or employees, as defined above, either faculty or member of the administration working in IA with overall responsibility for the IA Instructional Program. Provide evidence, i.e., letter of testimony or job description. (10 points required)

Dr. Guillermo A Francia, III is the Director of the Center of Information Security and Assurance (CISA) (http://mcis.jsu.edu/cisa) in the MCIS Department. He teaches most of the IA courses and administers two laboratories — Networks and Security Laboratory and the Data Exploration and Forensics

Laboratory. (Dr. Francia's vitae may be found online at http://mcis.jsu.edu/faculty/gfrancia.)

Criterion 9.b

> Identify by name additional IA faculty members (not listed in 9.a), as defined above (full/part-time), teaching IA courses within the department that sponsors IA programs. (5 points per faculty member; 20 points maximum)

Dr. Jane Kushma received her Ph.D. in Urban Policy and Public Administration from the University of Texas at Arlington. She has practiced and taught in the field of emergency management for more than 25 years. Current research and teaching interests include emergency management policy, disaster management, nonprofit organizations and volunteer management, and service learning. (Dr. Kushma's vitae may be found online at http://iep.jsu.edu.)

Dr. John Spain, CMAS, CPP, is a past American Society for Industrial Security (ASIS) Senior Vice President and a member of the Information Technology Security Council, a council he chaired for five years. He has a Ph.D. in Administration and Management with a dissertation focusing on Corporate Risk Modeling and countervails to mitigate threats and vulnerabilities associated with security risk. John is a Certified Protection Professional (CPP) and a Certified Master Anti-Terrorism Specialist (CMAS). He has spoken nationally and internationally on computer security, loss control and risk management. (Dr. Spain's vitae may be found online at http://iep.jsu.edu.)

Criterion 9.c

> Identify by name shared (e.g., intra or inter departmental, other 4-year graduate university, industry expert, etc.) and adjunct/part-time faculty (e.g., professor teaching 1 or 2 IA courses per semester or teaching IA in existing courses). (2 points per faculty member; 10 points maximum)

- Dr. Monica Trifas (http://mcis.jsu.edu/faculty/atrifas)
- Dr. Aaron Garrett (http://mcis.jsu.edu/faculty/agarrett)
- Dr. Andrew Ciganek (http://mcis.jsu.edu/faculty/aciganek)
- Dr. Sri Krishnaprasad (http://mcis.jsu.edu/faculty/skp)
- Dr. David Thornton (http://mcis.jsu.edu/faculty/thornton)
- Dr. Ming Yang (http://mcis.jsu.edu/faculty/myang)
- Dr. Chi-Chin Chao (http://mcis.jsu.edu/faculty/cchao)

- Ms. Cindy Jensen (http://mcis.jsu.edu/faculty/cjensen)
- Dr. James Thomas (http://www.jsu.edu/depart/ccba/jthomas)
- Dr. Jeffrey Zanzig (http://www.jsu.edu/depart/ccba/jzanzig)

Appendix A

Self-Evaluation Summary

Criterion	Points		
	Min	**Max**	**Actual**
Outreach/Collaboration	15	25	**22**
IA as a Multidisciplinary Science	10	20	**20**
Practice of IA Encouraged Throughout the University	17	25	**25**
Student-based IA Research	20	40	**32**
Faculty Active in Current IA Practice and Research	20	55	**26**
IA Resources	8	15	**15**
IA Academic Program is Robust and Active	15	45	**24**
Center for IA Education	20	35	**35**
Number of IA Faculty and Course Load	20	40	**30**
Total	**145**	**300**	**229**

Table A.1: Summary of Self-study of CAEIAE Criteria