Georgia Southwestern State University

School of Computing and Mathematics

Department of Computer Science

Program Review
Bachelor of Science in
Computer Science

(Self-Study)

December 2014
Executive Summary

1. Conclusions about the Program’s Quality and Productivity

- Faculty within the department provide quality instruction and advisement.
- The CS and IT programs enrollment is growing and the curriculum continues to adapt to the changing technology.
- Students are active in the classroom as well as providing needed services for the department and are active in the GSW community as well as the surrounding community.
- Alumni have been successful in finding employment and some have continued to be involved in activities within our department.
- The infrastructure of the department includes state-of-the-art computer systems as well as virtual systems which continue to be updated as technology grows and changes.
- Both individual and joint research is conducted within the department, both through the faculty and through joint efforts with the students.
- Services – The department continues to provide many needed services to the students and to the community.
- Small class sizes allow for more interaction between the students and the instructors.
- The growing job market will help to increase enrollment in the CS program.
- The modern computer infrastructure helps the instructors teach current technology and provides the students with access to up to date technology.
- Through grants and research, the faculty have an opportunity to bring in additional funds for the department.
- Beacon Alert System helps the department monitor students’ academic success.
- Peer tutoring helps students who are struggling and also help to develop relationships among the students.
- ProctorU helps to eliminate academic dishonesty issues within online classes.
- Clubs and Organizations offer activities and bonding students outside of the classroom.

2. List of Recommendations for Improving Program Quality

- The Developing Critical Thinking Skills Seminars/Contests should be organized each academic year for all computing majors.
- The CS curriculum should be updated according to recommendations of the ACM Computer Science Curricula 2013 (published on December 20, 2013).
- The high demanding on the job market topics, such as virtualization, big data, and programming of mobile devices should be added in the CS curriculum.
- The department needs to grant access to the ELMS software distribution server to all undergraduate CS students.
- Students/ Faculty Focus Group meetings should be included in the annual assessment process.
• All faculty need to make contributions to the Capstone Project class, which is vital for computing majors.
• The department needs to use the alumni network for obtaining internships and exploring virtual internship opportunities.

3. List of Recommendations for Improving Program Productivity

• Together with the Academic Resource Center, the department needs to increase the availability and quality of tutoring.
• The existing three and four year plans of study should be discussed with advisees as possible targets.
• The advisors need to implement Beacon and DegreeWorks in their practices.
• Connections of advisors with freshmen should be developed from the first semester of students’ study at GSW.
• The department needs to increase the number of group social activities.
• The department should attract a range of students (from freshmen to seniors) for participation in Job Showcase events.
• The department should offer first-year seminars (development of logical thinking skills and career-oriented seminars).
• The department should experiment with new teaching and learning approaches in the high failure rate courses.
• The department should revive the two-year college agreements.

4. Conclusions about the Program’s Viability at GSW

• The department provides service courses for more than 200 students each semester in programming, computer applications, and multimedia and desktop publishing.
• The department works with the local schools, which is one of the strategic goals of GSW.
• Despite GSW location is not as attractive as location of other universities, some graduates pointed out that they like to study here because of a number of unique opportunities, some of which are listed in "Major Strengths" section of the report.

5. Summary Recommendation

The program has potential to grow. The job market looks very favorable for Computer Science majors in the next 10 years http://www.bls.gov/ooh/computer-and-information-technology/home.htm. Growth will be driven by the very rapid progress in computer technology, which is projected to be the fastest expanding industry in the US economy. We recommend that this program be continued.
State of the Computer Science Department

Program Overview

The Computer Science (CS) program at GSW had its beginning in 1981 when a Computer Science option was offered to students in the mathematics program. The B.S. CS degree was first offered at GSW during the 1982-1983 academic year. The first group of CS graduates received their degrees in the spring of 1984. That year, GSW had four students who graduated with 4.0 GPA, and three of those were CS majors.

The program meets the needs of both the students who wish to pursue a career immediately upon graduation and those who plan for graduate studies in Computer Science. The curriculum offers a good balance of practical skills and theoretical backgrounds that are necessary for adapting to the ever changing technology. In the following we list the School Mission Statement

The School of Computing & Mathematics is committed to strong, dynamic undergraduate and graduate programs in mathematics and computing, emphasizing knowledge that is relevant to educational, technological and business needs, offering students personalized and challenging experiences. The faculty is committed to scholarship, creative work and community services. In addition, the School is dedicated to providing mathematics learning support courses and computer applications courses for all University students. Its faculty serves as an advocate for the development and use of appropriate technologies across the campus, and in regional businesses, and industries. The school promotes an environment of collegiality and equal opportunity for all faculty, staff and students.

Program Learning Outcomes

The Program Learning Outcomes of the CS program describe what students are expected to know and are able to do by the time of graduation.

1. Demonstrate breadth of knowledge in areas of computer science, including programming fundamentals, algorithms, computer architecture & organization, operating systems, and database management systems.
2. Demonstrate an ability to apply knowledge of computing and mathematics, analyze given problems, and implement solutions.
3. Demonstrate an ability to function effectively on teams to accomplish an academic goal.
4. Demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.
5. Demonstrate an ability to communicate effectively orally and in writing with a range of audiences.
6. Be prepared for entry-level employment or master’s degree.

The aforementioned Program Learning Outcomes are in alignment with the University’s Mission Statement, which is listed below:
Georgia Southwestern State University cultivates excellence in learning and teaching that encourages intellectual, personal, and social growth for students, faculty, staff, and the community. Georgia Southwestern State University is a comprehensive state university within the University System of Georgia that offers a full range of bachelor degree programs, along with selected master’s and specialist degree programs.

Approved by GSW Faculty April 30, 2010

Highlights

The B.S. CS program is one of the two undergraduate programs in computing offered at the School of Computing and Mathematics. The School also offers the M.S. CS program. The School shares the following core characteristics and purposes with the Georgia Southwestern State University.

1. Commitment to excellence in teaching, both within and beyond the classroom through innovative curriculum and projects.
2. Preparation of students for successful careers by teaching with industry leading software and implementing real-world projects.
3. High quality support of general education for a variety of academic programs at the baccalaureate level. The program offers service classes such as Computer Applications, Desktop Publishing & Multimedia, and etc.
4. Contribution to local communities by providing public service, life-long learning, technical assistance, social and cultural offerings.
5. Dedication to scholarship and creative work. The School encourages faculty’s scholarly pursuits and promotes the efforts to enhance instructional effectiveness.

Milestones of the CS Department (Fall 2007 – Spring 2013)

Fall 2007 – Spring 2008

The department developed two new 2+2 agreements with Darton College (October 23, 2007) and Bainbridge College (May 22, 2008).

A group of 26 minority students from the Georgia Southwestern Early College and the Georgia Southwestern Upward Bound Program participated in a GSW-NASA summer camp during the week of June 26th - June 29th, 2007. The purpose of the camp was to broaden the participation of underrepresented students in computing education. The event was supported by the NASA grant.

The department in collaboration with Georgia Tech, as part of the "Georgia Computes!" initiative, conducted a Computing Summer Camp (May 19 – 30, 2008) on the GSW campus. It was a free of charge summer camp for 30 middle school and high school students. The students learnt how to program robots and develop 3-D animation.

The department together with the Computer Science department from Columbus State University (CSU) organized seminars (Colloquium Series in Computer Science). The two lectures were presented for the

**Fall 2008 – Spring 2009**

On April 3rd the department hosted a distinguished lecture series to promote the computer science graduate program, in particular, to women and minorities. The series was funded by the Computer Research Association. Brian Blake, Ph.D., of Georgetown University and Xiaolan Zhang, Ph.D., of IBM were the featured speakers. Approximately 40 people attended the event, including students and faculty from Albany State and Fort Valley State. 14 students indicated their intentions to apply to the MS in CS program.

In April 2009 the School installed a new HP Server, which can host 30 virtual machines. Virtualization is a very demanding area on the job market. The server will be used in the Computer Security, Internetworking Architectures and Protocols, and Capstone Project classes.

Five students from North Gujarat University (NGU) visited GSW (May 2 – June 9, 2009). They worked on the following three projects: Fire Emergency Information System for the Americus Fire department, Virtual Lab for CS/IT online students, and Computer Lab Virtualization project.

Professional Development Schools Web Application (FIPSE Grant, $400,000) was completed in August 2008; the CS department is hosting the PDS Web Application for the National Association of Teacher Educators ($6,000 annually).

The department received the National Science Foundation Grant (March 2009 – February 2011), $43,000.

The School received a grant $4,250 from Georgia Tech and purchased 12 advanced robots for the Computing Summer Camp 2009.

**Fall 2009 – Spring 2010**

The department increased enrollment in Fall 2009 by 8.6% (Fall 2008 – 117 students, Fall 2009 – 127 students)

The department has joined the WebBSIT Consortium

Nine students from Hemchandracharya North Gujarat University (HNGU), India, attended GSW on an exchange visitor program

Four faculty enrolled in the eight week training and received teacher and course designer certificates in Moodle

The department organized a computing summer camp and a computing workshop in June 2009 (June 26, 2009, 26 students)

**Fall 2010 – Spring 2011**

The department joined to the 1+2+1 program with China. The seven students enrolled in the BSCS program
The department, together with the Early College, created a Computing Club with two sections Robotics and Multimedia. Sixteen students have joined this club. The students made presentations in robotics and animation on 5/10/11. This event was sponsored by AT&T grant.

The department, faculty, and students worked on two grants: AT&T Grant ($25,000) and NSF Grant ($43,000)

**Fall 2011 – Spring 2012**

The department set up a Document Management System (DMS), which serves as a depository for all documents required by SACS. DMS is accessible through a Internet password protected application.

The Computer Science department and the Computer Club organized a programming challenge contest in Spring 2012. The purpose of the contest is to boost students’ skills in programming. The three most successful teams received awards.

The department received a Microsoft Educator Grant - $10,000. This grant allows students in the class to have free access to the Microsoft Cloud Computing environment – Azure.

The department joined the VMware Academic Program. VMware is the industry leader in virtualization, the foundation for cloud computing.

On April 25, 2012 CS/IT students made final presentations in the Capstone class. Among the topics of capstone projects were: Deployment of a network Intrusion Detection/Prevention system, Development of a software library to control a Java-driven educational robot, and Development of a cross-platform assignment aggregation tool for Georgia View. The latter tool can be used for Desire2Learn LMS and helps to increase faculty efficiency.

**Fall 2012 – Spring 2013**

In Fall 2012 the computer network environment of the School of Computing and Mathematics was redesigned. The state-of-the-art computer network, which is connected directly to PeachNet is available to students beginning Spring 2013. The network contains two virtual labs and also a set of different servers and workstations. New settings will improve the quality of teaching, especially, for online students. This innovative solution was presented by the Computer Science Faculty at the International Conference on Frontiers in Education.

The faculty and students accounts on the ELMS server were set up in Fall 2012. ELMS is a Web-based software distribution and management application hosted by Kivuto Solutions Inc. As a turnkey system, ELMS enables to authenticate eligible users online and automate the ordering and distribution of Microsoft software to students and faculty. The department is a member of the Microsoft Academic Alliance. This membership allows faculty and students to download all necessary software for free.

The department organized The Problem Solving Seminar. In Fall 2012 the faculty made three presentations: Algorithms for Solving Tower of Hanoi Puzzle, Backtracking Algorithms, and Greedy Algorithms. Each presentation was illustrated by computer programs.
A Students/ Faculty Focus Group meeting was organized in Fall 2012. During this meeting students and faculty discussed quality of the degree programs and learning outcomes. A total of 21 students attended the meeting.

The department received a Microsoft Educator Grant - $19,345.

Mr. Rodney Martin, Human Resources Business Partner at Triton Digital, Marietta, GA met with CS/IT students on April 17, 2013. Mr. Martin discussed an opportunity for employment at Triton Digital. Ben Zhou is the School’s alumnus, who now works for Triton Digital, accompanied Mr. Martin.

The department received a winner’s award in the Quality Enhancement Program Logo Contest.
1. Major Strengths

Faculty

The Computer Science department is made up of five full time faculty and four-five part-time faculty who provide quality instruction and advisement for all students in the Computer Science Program. Faculty members of the department of Computer Science hold expertise in various fields of the Computer Science discipline. Such an expertise is a result of years of previous professional experience and continuous development. It is worth mentioning that faculty members of the department of Computer Science are highly encouraged to conduct research, publish results of the research and attend conferences, workshops, trainings, seminars, and other events.

Our faculty members can also be seen as active community servants. They prepare and conduct presentations for middle- and high-school students, lead chapters of various academic organizations and clubs, organize development seminars and workshops for students and other faculty members, and represent the School of Computing and Mathematics on various campus-wide committees.

Curriculum Vitae of each faculty member can be found in the Appendix 1

Program

The Computer Science program attracts many new freshmen students. Official numbers show six-year enrollment grows at the rate of 21.4%. More details on Program improvement can be found in “Areas for Improvement” section of this document. Recently CIS3000 Internet Technologies and CIS4200 Computer Security were added to the required courses that must be taken to graduate with a Computer Science degree. The addition of these classes will help to insure that the students are familiar with the most up to date technology available and will also satisfy the requirements of the official ACM Curriculum Guidelines (http://www.acm.org/education/curricula-recommendations).

Adjustment of course offerings, allowing to meet requirements of today's reality, is one of the major strengths of the Program. More details about program improvement can be found in the “Areas for Improvement” section of this document. Official degree statistics is available in Appendix 2.

Students

Students of the department of Computer Science are recognized as active members of the academic environment. They demonstrate connection with classwork activities, not only while playing classical role of receivers of the knowledge, but also as active distributors of such a knowledge by means of providing tutoring service to other students. Moreover, our students demonstrate highly motivated involvement into various activities organized by the department including but not limited to (i) participation in events of the Computer Science Club and the
GSW Chapter of ACM Upsilon Pi Epsilon organization; (ii) involvement in project development; (iii) presentations under the umbrella of “My State, my Country” seminar.

Alumni

Between Fall 2006 and Spring 2013 there were 61 graduates from the department of Computer Science. A breakdown of the number of graduates per academic year can be found in the Appendix 2. Graduates of the program have been successful in finding employment after graduation in various areas such as instructors, network specialist, systems analyst, game development, and some starting their own businesses. A few examples include a recent graduate who is a Senior Engineer with n-Space, a licensed game developer for Nintendo Wii, Nintendo DS, Nintendo 3DS, PlayStation 3, Xbox 360, and PSP game consoles, a System Software Analyst at Total System Services, and as the Executive Vice President of Ag Technologies. A few of our former alumni have continued to invest in the futures of our current students by speaking at seminars and job fairs hosted by the department and acting as mentors to our students. Our alumni have also provided internship opportunities to current students and have been instrumental in helping our graduates find jobs after graduation. Graduates also serve as members of our advisory board.

Infrastructure

Starting from the Fall of 2011 academic year, the School of Computing and Mathematics initiated development of the state-of-the-art computing infrastructure which was built on the basis of virtualization technology. The infrastructure allows addressing many challenging problems including but not limited to: (i) delivery of the equal service to in-class and online students by means of providing access to various computing resources, for instance, virtual servers, hybrid networks, development platforms, etc.; (ii) on-demand deployment of web-based solutions, such as document management system, wiki pages, user portal, and others; (iii) providing convenient and reliable access to various network resources via dedicated wireless facility, allowing to separate faculty and student traffic; (iv) providing controlled access to the network facility from the Internet by means of VPN technology.

All graduate students as well as all faculty members are provided with an opportunity to request pre-configured personal virtual workstations to meet any requirements in terms of installed software and accessibility to other resources of the infrastructure. As it was mentioned earlier, our department is a member of Academic Alliances with Microsoft and with VMware. Participation in these alliances opens access to various software products including operating systems, development environments, virtualization solutions and others.

Continuous development of the infrastructure is identified as one of its major strengths. Not only do we try to keep up with a constantly growing demand on quantity and quality of the provided service, but we also never stop revising previously implemented features and functionality. For example, the most recent revision of the infrastructure that took place at the end of the Spring 2014 term, involved creation and reassignment of multiple VLANs to allow precise control over 4 types of traffic: Internet, local faculty, local students, and local classroom. Another example would be an introduction of the wireless facility in the Crawford Wheatley Hall, spanning 6
access points to provide reliable and secured access to VLANs with respect to user role (student or faculty member).

Lastly, our virtual computing infrastructure is partially based on Open Source technology which allows our students to learn alternative ways of budget distribution among various infrastructure components. It is a common trend nowadays to invest into well recognizable hardware vendors like Cisco, Juniper, etc. and software brands, like Microsoft, Oracle, etc. Such an investment is a de-facto portion of many IT budgets, but at some point it can definitely be reduced by considering Open Source alternatives. For example it is possible to deploy a pfSense open source firewall equipped with snort package in place of Cisco ASA 5520 security appliance to save somewhat in the range from $1,000 to $4,000. It is also possible to migrate from using Microsoft Terminal Services to Linux Terminal Service Project for classroom deployment and save on RDS licenses for about $50 per workplace. A structure of the School Computer Network can be found in the Appendix 3.

**Research**

Faculty members of the department of Computer Science conduct individual and joint research in the field of Computer Science, Computer Engineering, Information Technology and others. Research interests span a wide variety of topics including but not limited to data mining, data processing, computer-aided analysis of human performance, decision making, robot control, theory of control, use of modern technology in educational process, and others. Most valuable results of the research are published in recognized national and international conference proceedings (IEEE ACC, IEEE CDC, IEEE VSS, IEEE ICDM, ACM SIGITE) and journals such as IEEE TAC, IEEE TIE, IJRNC, IJSS. Our faculty members also appear to actively participate in various editorial boards and provide peer-review service. Detailed list of publications can be found in the Appendix 1.

Throughout the past several years department has received several grants intended to raise community interest to the field of STEM-related disciplines (samples of presentation flyers can be found in the Appendix 4) and to support students' efforts to investigate new technology such as cloud computing and virtualization. Joint work of faculty members and students on several recent research proposals also needs to be mentioned in this context.

**Services**

The department of Computer Science provides an up to date computer lab that is available to all students and staffed with lab assistants to help with any questions or issues that may arise. The department also has a rich source of software available to the students and to faculty. The department is a member of Microsoft Academic Alliance, IBM Academic Alliance, VMWare Academic Program, and EMC Academic Alliance. Some programs are purchased by the department or received as a donation, e.g. the 15 licenses for the Liquid XML Studio from Liquid-Technologies Ltd. Tutoring services and supplemental instruction sessions are also
offered to the students for classes that may require additional help outside of the normal classroom hours.

As previously mentioned internship opportunities are also available to students providing them with real world experience. Students have been able to participate in internships through our Office of Instructional Technology department helping to set up network systems and set up classroom and lab computers and networks. We have also had students intern through AT&T, Barnett Computing, Phoebe Sumter Medical Center, and Computer Business Services to name a few. From Fall 2007 to Spring 2014 there have been 21 students that have participated in internships.

Through the computer club and UPE, field trips and other activities have been scheduled to give the students a view of what types of working environments exist and to hopefully encourage their desire to continue in the CS and IT fields. Recently, students were able to tour the new cutting edge technology used when our new hospital was built. The students were able to tour the IT department and have a walkthrough of the hospital and the many ways that technology is used. The computer club and UPE also host a Job Showcase each Spring semester in which they invite members of the Advisory Board and area IT and CS business representatives to come and talk about what can be expected in their specific jobs and to answer any questions the students may have. The representatives also review students’ resumes and offer tips and advice.
2. Areas for Improvement

Computer Science Curriculum

The program is based on the ACM Computer Science Curricula 2008 and covers all of the required major areas of Computer Science. In the next academic year the CS curriculum should be updated according to recommendations of the ACM Computer Science Curricula 2013 [http://www.acm.org/education/CS2013-final-report.pdf](http://www.acm.org/education/CS2013-final-report.pdf) (published on December 20, 2013).

New Courses

The strength of the program lies in the combination of theory, software, hardware, and the laboratory facilities available to the students. The program is closely linked to current practice – students may culminate their learning with a capstone project under the supervision of a faculty advisor. To keep the CS program current the department needs to add in the CS curriculum following topics: virtualization, big data, and programming of mobile devices. These three areas will provide a substantial number of jobs in the next 10 years. These new courses will be offered under the umbrella of CSCI 4900 Special Problems in CS course.

Industrial Strength Software

The degree program is geared towards current industry demands and prepares the students equipped with the latest technology. The classrooms and computing laboratory are equipped with the state-of-the-art technology. Currently all CS faculty and graduate students have their own virtual workstations, fully loaded with required programming tools and applications. In the current academic year the CS department needs to extend access to virtual workstation to junior and senior undergraduate students, who participate in research and projects. Students in their classes have access to the latest software programs under the academic alliance with Microsoft, IBM, VMWare, and EMC. The department needs to grant access to the ELMS (Microsoft and VMWare) software distribution server to undergraduate students as well.

Improvement Computer Infrastructure

Computer infrastructure is a critical issue for the CS and IT majors. Such an infrastructure is important for all students but absolutely essential for online students. The computer infrastructure was redesigned in Fall 2012 and used by the department in Spring 2013. Future assignments in improvement of the computer infrastructure are 1) implementation of wireless access to the School (GSWCM) computer network for all computing and mathematics majors, 2) implementation of network management tools, and 3) implementation full functionality of the DMS server.

Budget

The department’s budget is satisfactory. The last couple years we received around $30,000 on improvement of the computer infrastructure. Currently the department has separated air-
conditioning system, new servers, and necessary network core equipment. Such an improvement helps the department to run virtual laboratories, which is especially important for online students. The budget covers all memberships and software licenses. Example of the Budget Request for FY14 is in the Appendix 5.

Program Assessments

Each academic year the department conducts the CS program assessment. Conclusions about quality of the program and necessary improvements faculty make at the Faculty Retreat meetings in June of each year. A new three year cycle of the program assessment was established in Fall 2011. Materials on the program assessment can be found in the Appendix 6.

Problem Solving Seminar

The department organized The Problem Solving Seminar. In Fall 2012 the faculty made three presentations: Algorithms for Solving Tower of Hanoi Puzzle, Backtracking Algorithms, and Greedy Algorithms. The presentations were illustrated by computer programs. The seminar will be organized each two years to give all junior and senior CS students an opportunity to attend one.

“Follow Me” Seminar

While CS students learn programming and are successful in the following classes CSCI 1301, CSCI 1302 and CSCI 4310, this doesn’t fully prepare them for development of real-world projects. In the Fall 2013 semester, the School ran a “Follow Me” seminar, which is a new approach to training students in software development. The student leader who worked on a real-world programming project, shared with students (trainees) at weekly sessions, all steps in project development. The students provided positive feedback on such an extra-curricular activity, which will help them to succeed in the work place after graduation. From this academic year, a faculty member will lead the “Follow Me” Seminar.

Capstone Projects

Below are sample topics of the Capstone projects, which students complete in Spring 2013:

1. Scheduling a student-advisor appointment system on an Android smart phone.
2. Use of Spartan 3E Starter Kit board to communicate with a computer network by means of customized implementation of the TCP/IP stack of protocols.
3. Programmatic and sensor driven control of an IntelliBrain-Bot (Java driven robot).
4. Camera assisted remote control of a Scribbler robot over a wireless network.
5. Dynamic E-Commerce website (MySQL+PHP).

In spite of positive feedback, which students provide about this class, varieties of topics for the projects are limited by expertise of the Capstone Project class instructor. In this academic year
the department will develop an approach, which allows all faculty to make contribution to this essential for computing majors’ class.

Field Trips

The department organized field trips but it was not a regular event. For example, the last time 14 students participated in a field trip to the IT department of Phoebe Sumter Medical Center in Spring 2013. The department will be organizing field trips each academic year. In the 2014-2015 academic year students will tour the Information Center of Habitat for Humanity International.

Enrollment

Regardless of substantial enrollment grows for the last seven years, the BSCS program still needs to improve the graduation rate, which is not sufficient. New funding formula forces the CS department to analyze how higher admissions requirements vs. increasing enrollment effect grows of the graduation rate. Outcomes from that analysis will allow determining the strategy of optimal enrollment management. The department will be working on that assignment as soon as the funding formula will be released by BOR.

The enrollment of upper division courses is satisfactory, 18 students on average, but enrollment in these classes still have opportunity to grow. To increase such enrollment, the CS department needs to improve the retention and progression rates.

The program should continue to enhance its unique features, such as the offering of practical experiences and real-world projects to students. Currently, the number of such projects is not sufficient, less that it was seven years ago. The department will be working with local and state businesses and organizations to eliminate that problem. The first achievements on that way are new projects in 2014 with Georgia Forestry Commission and Southeastern Pneumatic.

Marketing the program to local high school graduates and participants of the Annual State-Wide Mathematics Tournament will help to recruit more new students and improve their quality (Appendix 4).

Retention, Progression, and Graduation

Beacon

One of the biggest problems, related to retention and progression, is disconnection freshmen and their advisors. In Fall 2014 semester GSW made Campus Labs Beacon available to students, faculty, and staff. Campus Labs Beacon is a web-based solution focusing on six factors that are the strongest predictors of student retention and persistence, asking students questions about everything from their social skills and confidence levels to their attitude toward learning. This system is especially important for the CSCI 1301 Introduction to Programming I class – the key class for Computer Science majors. Passing rate in that class is around 60%. The CS department is going to implement this system in Fall 2014.
DegreeWorks
DegreeWorks is a computerized degree audit program and academic advising tool designed to assist students and advisors in reviewing students’ degree progress. This academic advising tool reduces probability of mistakes and speed up graduation. All CS department academic advisors attended training in Spring 2014. They will implement DegreeWorks in process of advising in the current academic year.

Independent Studies
The department offers a necessary number of independent studies, which is required for students’ progression and graduation. In the 2012-2013 academic year, the CS department offered 10 independent studies. In many cases an independent study can be avoided if academic advisor and student would develop a plan of study based on the multi-year schedule (Appendix 7). The department developed three and four year plans of study (Appendix 8). In the current academic year, DegreeWorks will be used for creating individualized plans of study for junior students.

Job Showcase
Each Spring the department organizes a Job Showcase for seniors and juniors. This event is conducted by faculty, together with the members of the School Advisory Council. From the current academic year the department will invite all CS majors, including sophomores and freshmen. It will help this category of students to focus on development skills, which are required for successful employment.
3. Key Opportunities

Growing Job Market

In both CS- and IT- fields, it is a well-recognized trend that more and more entry level positions become available in the professional job market. New graduates of our programs are given relatively good chances for employment. For example, according to the Bureau of Labor Statistics, projected percent change in employment from 2012 to 2022 shows the average growth rate of 18.6% for all general CS- and IT- occupations (http://www.bls.gov/ooh/computer-and-information-technology/home.htm).

Growing Interest to Computer Technologies in the Society

Variety of the computers, tablets, and smartphones are broadly used by people of all ages, especially teenagers. This is best and free marketing of Computer Science major.

Modern Computer Infrastructure

Recent development of the computer infrastructure of the School of Computing and Mathematics allows effectively address the following goals:

1. Equal service to students enrolled in online and in-class sections;
2. Access to state-of-the-art technology and software for students and faculty members;
3. Reconfigurable computing environment allows sharing classroom facility to deliver targeted course content.

Grants and Research

Faculty members are encouraged to conduct research in the field of their expertise. Twice a year every faculty can apply for a Faculty Development Grant and request financial support to compensate his/her expenses while attending conferences, workshops, trainings, etc. Another funding opportunity comes from the Faculty Instructional Grant which is rather focused on helping to bring state-of-the-art technology into a classroom. Last but not least, selected students are given with an opportunity to participate in joint research with mentor faculty members, so their names are listed as co-authors of the research and they learn best practices of manuscript formatting and requirements for professionally looking presentations.

Beacon Alert System

GSW has recently implemented the Beacon Alert System which allows advisors, professors, coaches, Student Support Services, and other key people in each student’s academic career to have access to a central monitoring system. Beacon keeps everyone updated on how the student is performing and any situations that may occur. Through the use of Beacon, a student can be advised and helped at a much earlier stage in their academic career.
ProctorU

ProctorU is a test proctoring system that is being implemented for use in GSW online classes. This allows the students taking online classes to take their tests in a place that is convenient to them without having to come onto campus or go to a testing center. One of the main goals of using ProctorU is to eliminate some of the academic dishonesty issues that are possible with online classes. It also allows the students to test in an environment that is more comfortable for them and hopefully will help increase their scores.

Clubs and Organizations

Through the Computer Club, UPE, and the department, activities such as field trips, job fairs, and information sessions are offered. Fun activities simply to build bonds among the students are and can be scheduled also. The goal of these types of activities is to promote bonding among the students and hopefully improve retention.
4. Key Challenges

Challenge 1: Insufficient Logical Thinking Skills of Computer Science Majors

Employers representatives on the department’s Advisory Board meetings pointed out that former students do not demonstrate sufficient skills in logical thinking. In their opinions, logical thinking is more important than just technical skills. The CS faculty also reported that logical thinking skills of incoming freshmen are declining. This problem is closely related to ability students successfully complete CS classes, especially, programming classes. For example, the failing rate in the CSCI 1301 Introduction to Programming I class is around 40%. This is a real challenge, which impact overall success CS students in the university and future work places.

Mitigation of the challenge 1

- Increase availability and quality of Tutoring.
- Allocate time for development logical thinking skills in the low level CS and Math classes (labs).
- Provide scholarships to students, who successfully participated in the GSW’s High School Mathematics Tournament. (Every year GSW hosts around 500 students from dozens schools state-wide).
- Work with local High Schools.
  (The Mathematics department created a program of training teachers and peer tutors in the Americus Sumter High School. The goal of the program is to introduce a teaching approach, which help teachers and peer tutors to improve students’ logical thinking skills).
- Increase admissions and degree requirements.
- Increase international enrollment.
  (As a rule, international students, especially from India and China, have good grades in mathematics and, consequently, good logical thinking skills. Such students create in the department atmosphere of appreciation of such skills.)

Challenge 2: Low Progression and Graduation Rates.

Graduation rate will be the main component of the funding formula, which will be in place from Fall 2016. Financial welfare of the university and department will be depending on retention, progression, and, as the result, a graduation rates. Current numbers of progression and graduation rates of CS majors are below than GSW average rate.

Mitigation of the challenge 2

- Increase availability and quality of tutoring
- Discuss with advisees existing 3 or 4 year plans of study as a possible target
- Implement Beacon and DegreeWorks
- Improve advisement
- Increase a number of group social activities
Challenge 3: Insufficient Connections Freshmen with their Academic Advisors.

As a rule, students in the university have majority of problems during their first two years of study but advisors spend more time working with junior and senior students. As result, after first several problems new students change their majors or withdraw from the university.

Mitigation of the challenge 3

- Meet with freshmen during UNIV 1000 classes
- Create profession-oriented presentations for freshmen
- Invite freshmen to participate in CS Club, Field Trips, Job Showcase events, and other activities.

Challenge 4: Increasing Cases of Academic Dishonesty

According to the CS faculty a number of cases of academic dishonesty is growing. As said by many latest publications it is a nationwide problem (e.g. The Carnegie Foundation for the Advancement of Teaching (http://www.carnegiefoundation.org/perspectives/justice-or-just-us-what-do-about-cheating). These rapidly progressed cases of academic dishonesty are a result of ability to find almost any required information via the Internet in few minutes. Moreover, solutions of students’ assignments become a big business. Danger of academic dishonesty is obvious – students are able to obtain degrees without acquiring necessary knowledge and skills.

Mitigation of the challenge 4

- Use proctoring tests in all online classes
- Use notepad ++ for finding similar programming assignments in a class (Turnitin cannot be used in the case of programming assignments)
- Schedule an individual student’s presentation of assignments and projects, where it is possible.
• Enforce GSW Academic Integrity Policy in each class (https://gsw.edu/campus-life/resourcesinformation/studenthandbook/gsw-academic-integrity-policy).

**Challenge 5: Low Number of Internships**

Americus and Sumter County has a limited number of organizations, which equipped by the latest computing technology required for CS internships. The largest from these organizations are Phoebe Sumter Regional Hospital and Habitat for Humanity International. The department has connections with both organizations, but a number of the internships, which they offer, are not sufficient.

Mitigation of the challenge 5

• Increase connections with organizations and businesses outside of Americus and Sumter County
• Use alumni network for obtaining internships

**Challenge 6: Low Number of Group Activities**

The group activities were organized by the CS Club and UPE (CS Honor Society). These activities are extremely important for increasing of the retention rate.

Mitigation of the challenge 6

• Develop plan of activities
• Raise funding for new activities
• Increase a number of events for freshmen and sophomores

**Challenge 7: Declining Enrollment of International Students**

Increase in International Enrollment is one of the strategic goals of GSW (Goal One, Objective 2: Recruit More International Students). Currently, a number of International students is not growing. Reasons of this problem are internal and external.

Mitigation of the challenge 7

• Develop new programs which will be attractive to International Students
• Create reasonable scholarships for students from MOU Universities
• Provide better services to International Students at the department and GSW levels.
• Collaborate with the newly created International Office in all aspects related to International Students
Draft Strategic Plan

Status: Not started, In progress, Completed

GSW Strategic Plan: [http://sacs.gsw.edu/sacs/SACS/MovingForward.html](http://sacs.gsw.edu/sacs/SACS/MovingForward.html)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Activity (Implementation Term)</th>
<th>Status</th>
<th>Evidence</th>
<th>Aligned with GSW Strategic Plan Action Objective#</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improving Program Quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve Critical Thinking Skills of CS/IT students</td>
<td>The Developing Critical Thinking Skills Seminars/Contests will be organized each academic year for all computing majors (Spring 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal Two Objective 2</td>
</tr>
<tr>
<td>Implement the latest recommendations of the ACM CS/IT Curricula</td>
<td>The CS/IT curriculum will be updated according to the latest recommendations of the ACM CS/IT Curricula (Fall 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal Two Objective 2</td>
</tr>
<tr>
<td>Implement in the CS/IT curriculum the high demanding on the job market topics</td>
<td>The high demanding on the job market topics, such as virtualization, big data, and programming of mobile devices should be added in the CS/IT curriculum (Fall 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal Two Objective 2</td>
</tr>
<tr>
<td>Include Students/ Faculty Focus Group meetings in the annual assessment process.</td>
<td>Students/ Faculty Focus Group meetings will be included in the annual assessment process</td>
<td>In progress 10%</td>
<td></td>
<td>Goal Two Objective 2</td>
</tr>
<tr>
<td>Improve the Capstone Project class</td>
<td>All faculty need to make contributions to the Capstone Project class, which is vital for computing majors (Spring 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal Two Objective 2</td>
</tr>
<tr>
<td>Increase a number of internships</td>
<td>The department needs to use the alumni network for obtaining internships and to explore virtual internship opportunities (Fall 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal Two Objective 2</td>
</tr>
<tr>
<td>Goal</td>
<td>Activity (Implementation Term)</td>
<td>Status</td>
<td>Evidence</td>
<td>Aligned with GSW Strategic Plan Action Objective#</td>
</tr>
<tr>
<td>------</td>
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<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Improving Program Productivity</td>
<td>Increase the availability and quality of tutoring</td>
<td>In progress 10%</td>
<td></td>
<td>Goal One Objective 4</td>
</tr>
<tr>
<td></td>
<td>Together with the Academic Resource Center, the department will increase the availability and quality of tutoring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inform advisees about the existing three or four year plans of study in CS/IT</td>
<td>The existing three or four year plans of study will be discussed with advisees as possible targets (Fall 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal One Objective 4</td>
</tr>
<tr>
<td>Implement Beacon and Degree Works in the advisement</td>
<td>The advisors will implement Beacon and Degree Works in their practices</td>
<td>In progress 5%</td>
<td></td>
<td>Goal One Objective 4</td>
</tr>
<tr>
<td>Increase the number of group social activities</td>
<td>The department will increase the number of group social activities (Spring 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal Two Objective 4 Goal Three Objective 1</td>
</tr>
<tr>
<td>Attract a range of students (from freshmen to seniors) for participation in Job Showcase events</td>
<td>The department will attract a range of students (from freshmen to seniors) for participation in Job Showcase events.</td>
<td>In progress 10%</td>
<td></td>
<td>Goal One Objective 4 Goal Three Objective 1</td>
</tr>
<tr>
<td>Experiment with new teaching and learning approaches in the high failure rate courses</td>
<td>The department will experiment with new teaching and learning approaches in the high failure rate courses s.(Fall 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal One Objective 4</td>
</tr>
<tr>
<td>Revive the two-year college agreements</td>
<td>The department will revive the two-year college agreements (Fall 2015)</td>
<td>Not started</td>
<td></td>
<td>Goal One Objective 4 Goal Three Objective 2</td>
</tr>
<tr>
<td>Increase readiness of students from the local High Schools to study in a university</td>
<td>The School of Computing and Mathematics works with local High Schools to increase readiness to study in a university</td>
<td>In progress 20%</td>
<td></td>
<td>Goal One Objective 4 Goal Three Objective 1</td>
</tr>
</tbody>
</table>
Summary Recommendation

The program has potential to grow. The job market looks very favorable for Computer Science majors in the next 10 years [http://www.bls.gov/ooh/computer-and-information-technology/home.htm](http://www.bls.gov/ooh/computer-and-information-technology/home.htm). Growth will be driven by the very rapid progress in computer technology, which is projected to be the fastest expanding industry in the US economy. We recommend that this program be continued.
EDUCATION

• Doctor of Sciences (Computational Science and Engineering), Chelyabinsk State Technical University, Russia, 1990.
• Post-doctoral Program (Computer Science) College of Computational Mathematics and Cybernetics, Moscow State University, Moscow, Russia, 1976.
• Ph.D. (Computational Science and Engineering), Chelyabinsk State Technical University, Russia, 1974.
• MSEE - (Electrical Engineering) Chelyabinsk Polytechnic Institute, Chelyabinsk, Russia, 1968.

EMPLOYMENT

1999- present: Dean, School of Computing and Mathematics, Georgia Southwestern State University, Americus, GA.

2006-present: Professor, School of Computing and Mathematics, Georgia Southwestern State University, Americus, GA.

1997- 2006: Associate Professor, School of Computer and Information Sciences, Georgia Southwestern State University, Americus, GA.

1996-1997: Senior Research Associate, OR/Ed Laboratories, NC.

1990-1996: Chairman and Professor, Department of Informatics, Chelyabinsk State Technical University.

1976-1990: Associate Professor, Department of Applied Mathematics, Chelyabinsk State Technical University.

1973-1976: Assistant Professor, Department of Applied Mathematics, Chelyabinsk State Technical University.

1970-1973: Research Associate, Department of Control Science, Chelyabinsk State Technical University.


RESEARCH AND PROJECTS

2009-2012: Learning Opportunities through Technology and Science, AT&T, $25,000, Co-PI.

2009-2011: Collaborative Research: A Trial-and-Failure Project Tutoring System, National Science Foundation, $43,000, Co-PI.

2004-2008: Documenting and Disseminating the Effectiveness of Professional Development Schools in Improving Teacher Quality & Retention, Student Learning & Achievement, FIPSE Grant, $400,000, Co-PI.


2005-2006: Virtual Lab for Online Graduate CIS Courses. Distinguish Professor Grant. Together with Dr. Fu and Dr. Shah, Co-PI.
2004-2005: Intellectual Capital Partnership Program (ICAPP), Grant, $168,000.  
Software development project in partnership with NCR Corporation and Whole Foods Market.

2003-2004: Intellectual Capital Partnership Program (ICAPP), Grant, $198,000.  
Software development project in partnership with WalterPan, NCR Corporation, and Whole Foods Market.

2002-2003: Intellectual Capital Partnership Program (ICAPP), Grant, $98,000.  
Software development project in partnership with E-RoberParker.com.

2002-2003: NCR Corporation Grant, $1,600,000.  
The NCR grant includes self-service kiosk software, equipment, and training. The grant seeds the creation of a software development industry in southwestern Georgia, centered at Georgia Southwestern State University.

2000-2001: Online Graduate Prerequisite Program in Computer Science  
Distinguish Professor Grant. Together with Dr. Arvind Shah and Svetlana Peltsverger.

Together with Dr. Arvind Shah.


1996-1998: Quality of Services in Telecommunications Management: Collaboration and Group Decision Support in Desktop Video Conferencing Environments, Together with Dr. A. Bordetsky, TELCOT Institute, California State University, Hayward.

Together with Dr. Arvind Shah.

1996-1997: Virtual Organizations: Distance Learning Course "Optimal Decision Making in Public Administration" (in Ukrainian). Together with Dr. R.Taylor and M. Veresh. The project was supported by USAID/IREX and Carl Vinson Institute of Government.

1996-1997: Network Models in Virtual Organizations. Together with Dr. A. Bordetsky (TELCOT Institute, California State University), Dr. R.Taylor and Dr. M. Vasu (OR/Ed Laboratories, Inc., NC).

1994-1995: Scenario Based Approach to Distance Learning. Contract project for the Federal Committee of Higher Education, Russia. Together with E. Luchich and E. Grigorova. These UNIX and WINDOWS based programs are used at the International College of Chelyabinsk State Technical University, Chelyabinsk, Russia.


1993-1994: Distribution of Competitive Resources in Large Scale Computer Networks. Contract project for the Federal Committee of Higher Education, Russia. Together with D. Novak and Dr. A.Panyukov. This project involved the development of algorithms for solving the problem of assigning limited resources under constraints that specified an interval quantum of time. Chelyabinsk State Technical University, Chelyabinsk, Russia.


1970-1976: "Digital Systems of Control by Dynamic Platforms ", Contract for the Machinery Design Bureau, City of Miass, Russia. This project required the design of a multiconnected automatic system for multi-axes (three to six) dynamic platforms. High accuracy and stability was achieved by using decentralized digital controllers.


AWARDS

- Vice-President's Excellence in Scholarship Award, Georgia Southwestern State University, 2006.
- Soros' Foundation Award, Moscow, Russia, 1994.
- Best Student's Research Award, Ministry of Higher Education of the USSR, Moscow, 1974.

INVITED PRESENTATIONS

3. "Is Distance Leaning As Good?" Invited Panel, Southeastern Scholarship Conference on e-Learning (SSCEL), Macon, Georgia, October 1, 2005.
6. "Distance Education Administarting Tools", Invited Presentation, California State University at Hayward and TELCOT Institute, December 14, 1999.
12. "Industrial Conversion and Technology Transfer in the Ural Region of Russia", School of Management, University of Texas at Dallas, USA, November, 1993.

COURSES TAUGHT

Microcomputer Applications (undergraduate), Design and Analysis Algorithms (undergraduate), Discrete Structures (undergraduate), Internet Technologies (undergraduate), FORTRAN (undergraduate), UNIX Operating System (undergraduate), EDP, Auditing and Control (undergraduate/graduate), Data Structures and Algorithms (undergraduate/graduate), Theory of Graphs and Combinatorial Analysis (undergraduate/graduate), Computer Graphics (undergraduate/graduate), Advanced Computer Graphics (graduate), Compiler Design (undergraduate/graduate), Object Oriented Programming (undergraduate/graduate), Modeling and Simulation (undergraduate/graduate), Programming in Java (undergraduate/graduate), Programming in MS Visual Basic (undergraduate/graduate), Web Programming (graduate), Internetworking, Architecture and Protocols (graduate), Distributed Web Applications (graduate), Advanced Computer Architecture (graduate), Mathematical Programming (graduate), Theory of Games and Decision Making (graduate), Formal Methods in Programming Languages (graduate), Optimal Control Theory and Applications (graduate), Information Systems in Organizations (graduate).

PROFESSIONAL ACTIVITIES

Member of the Program Committee of the 51st ACM Southeast Conference, Savannah, 2013.
Member of the Ph. D. Committees 2008 and 2011.
Member of the Program Committee of the 14th International Conference on Telecommunication Systems - Modeling and Analysis, Penn State University – Berks, Reading, PA, October 2006.
Member of the Program Committee of the 43rd Annual ACM Southeast Conference, Kennesaw, 2005.
Member of the Program Committee of the International Conference on Decomposition Algorithms in Mathematical Modeling", Moscow, Russia, June 2001.
Member of ACM, USA, 1999 - present.
Member of the Decision Science Institute, USA, 2004 - present.
Head of Council Board of Regional Government (Telecommunications and Information Technologies), Chelyabinsk, Russia, 1992-1996.
Co-organizer and Vice-Chairman of the Program Committee of the All-Union Conferences on Decomposition and Coordination in Complex Systems, Academy Science of USSR: Chelyabinsk, 1986; Miass, 1988; Alushta, 1990.

LIST OF PUBLICATIONS

Books


Refereed Publications


22. Peltsverger B., Decomposition approach for multi-criteria problems solving under conditions of indefinite initial information, as in "Multi-Criteria Optimization and Dynamic Games", Russian Academy of Science, Moscow, 1994, 83-87.
36. Peltsverger B., Nenakhova E., Sartasov E. Decomposition modeling of one class nonlinear systems, as in 1987, 112-117.
44. Peltsverger B. Large scale interconnected systems structure design, as in "Systems of Automatic Control and Devices Design", Chelyabinsk Polytechnical Institute, Chelyabinsk, 1983, 14-16.
47. Peltsverger B. Puzikova N. Results of usage computer classes estimation, as in "Computers and Lab Equipment in Education", Chelyabinsk Polytechnical Institute, Chelyabinsk, 1981, 42-47.
49. Peltsverger B. Collection of the structure large-scale systems, Collection of the Papers of Chelyabinsk Polytechnical Institutes, Chelyabinsk, 1980.

Proceedings and Abstracts

2. Peltsverger, B. Classification of Types of Interactions of Sub-Clusters in Mobile Networks, Proceedings of the 14th International Conference on Telecommunication Systems - Modeling and Analysis, Penn State University – Berks, Reading, PA, October 4-8, 2006.
40. Peltsverger B. Estimation of possibility decomposition nonlinear multiconnected systems, Abstracts of AllUnion Meeting "Problems of the Control" (Academy of Science), Moscow, 1978, 118-121.

Textbooks and Educational Materials


Algorithms and Programs (State Registry)


PERSONAL

Married with son and daughter
**Dr. Arvind Shah, Professor**  
Department of Computer Science  
Email: arvind.shah@gsu.edu

**EDUCATION:**
- Bachelor of Science (Mathematics), M.S. University of Baroda, India - 1968
- Master of Science (Mathematics), M.S. University of Baroda, India - 1970
- Master of Science (Mathematics), University of Georgia, Athens, Georgia - 1972
- Ph.D. (Statistics), University of Georgia, Athens, Georgia - 1978
- M.S. (Computer Science), Georgia Southwestern State University, Americus, Georgia - 2000

**ACADEMIC EXPERIENCE:**
- September 1997 – Present: Georgia Southwestern State University, Americus, GA  
  - August 2008 to Present: Chairman, Dept. of Computer Science  
  - August 2006 to August 2008: Coordinator, Dept. of Computer Science  
  - August 2006 to Present: Professor, Dept. of Computer Science  
  - August 2000 to August 2006: Associate Professor, Dept. of Computer Science  
  - September 1997 to July 2000: Assistant Professor, Dept. of Computer Science
- July 1997 to September 1997: Instructor, DeVry Institute of Technology, Addison, IL.
- July 1988 to June 1997: Reader, Dept. of Computer Science, Faculty of Tech & Engineering M. S. University of Baroda, India.
- January 1980 to August 1981: Assistant Professor, New Mexico State University, Las Cruces, NM.
- September 1977 to March 1979: Assistant Professor, University of North Florida, Jacksonville, FL.

**INDUSTRY EXPERIENCE:**

**COURSES TAUGHT AT GSW**

**COURSES TAUGHT AT MS UNI., INDIA**
- Numerical Methods, Simulation & Modeling, Business Information Systems, Introduction to Statistics & Statistical Methods, Computer Oriented Statistical Methods, Computer Based Optimization Methods, Software Packages - FoxPro, Word Processing, Spread Sheet,

**COURSE AND PROGRAM DEVELOPMENT**
- Developed new courses CIS 4310 IS Project Management, CIS 6410 Client/Server systems, CIS 6420 Data Mining
Developed online version of CIS 6420 Data Mining, CIS 6410 Client/Server systems, CSCI 6410 Advanced Database system, CIS 6900 Special Problems in CIS (BI)
Developed online version of CIS 3200 Computer Network Management, CIS 3300 Systems analysis and Design, CIS 4310 IS Project Management, CSCI 4400 Intro to DBMS
Online Graduate Certificate Program -2004
Online Master of Science in Computer Science – 2006
Collaborated on proposal to develop Web Design Certificate
Collaborated on proposal to develop BS IT (Multimedia option)
Collaborated on proposal to develop BSIT( Minor) online 2012
Collaborated on proposal to develop BSIT( Minor) 2012

ADVISING

BS (CIS) Advisor prior to 2006
Graduate Student Advisor since 2000

UNIVERSITY SERVICE

Responsibilities as department chair
Director of Graduate Program in Computer Science 2008 –
Member of SACS-COC Compliance Certification Steering committee 2012-2013
Chair, SACS-COC subcommittee on Compliance Certification - Graduate Standards
Member of Academic Affairs Committee (1999-2003)
Member of Graduate Affairs Committee 2002 -
Member of Business and Finance Committee 2012-2013
Member of Self authored textbook review committee 2011-
Member of Featured Scholar Award Committee 2008-
Member of Information Tech. Advisory Committee (2004- 2008)
Member of Faculty Search committee, School of Computing and Mathematics
Member of search committee for director of HR – Spring 2013
Chair of Post Tenure Review Committee, School of Computing and Mathematics (Spring 2012)
Member of Comprehensive Program Review Committee, School of Computing and Mathematics - 2007
Member of Comprehensive Program Review Committee, School of Business - 2007
Member of Faculty Senate (2005-2007)
Member of Promotion and Tenure committee (2005-2006
Member of Institutional Research Committee 92003-2005)
Member of Comprehensive Program Review Committee, School of Computing (2002)
Member of Library Advisory committee (2001-2003)
Member of SACS Steering Committee (2000-2002)
Member of Centennial Celebration Committee (2000-2007)
Visit to HNGU, India with VPAA to sign MOU in Nov. 2008
Lead Presidential delegation to Dalia Group of Institutions, India – 2011

ADDITIONAL PROFESSIONAL SERVICE

• Registered as Ph.D. guide at Hemchandracharya North Gujarat University (HNGU) for Computer Science major since 2011.
• Examiner for Final Examinations (July 2012) in Bachelor of Computer Science, Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, INDIA
• Member - Ph.D. thesis review committee for Devasenathipathi N Guided by Nilesh Modi at S V Institute of Computer Studies, Kadi, Gujarat, India.
• Member - Ph.D. thesis review committee for Kanubhai Patel Guided by Dr. S. K. Vij at Dharamsinh Desai University, Nadiad, Gujarat, India.
• Reviewed research paper “Agents Based Knowledge Discovery Framework to Access Data Resource
• Member of International Advisory Committee, International Conference on Recent Trends of
  Computer Technology in Academia-2012, Janardan Rai Nagar Rajasthan Vidyapeeth University,
  Udaipur, INDIA

SCHOLARSHIP

Publication – Journal/Conference Proceeding:

1. Shah, A. C. – Web-based system to Documenting and Disseminating Effectiveness of Professional
  Development Schools – Proceedings of ‘Re-examining Teacher Education in the light of Global
  Perspective’ conference at JRN Rajasthan Vidyapith University, Udaipur, India- April 13-14, 2013.
2. Simon Baev, Boris Peltzverger, Arvind Shah - Design of a Reconfigurable Virtual Computing
  Laboratory, Proceedings of the 8th International Conference on Frontiers in Education: Computer
  in developing countries: A comparative study, Proceedings of the International Conference on Recent
  Trends of Computer Technology in Academia at Janardan Rai Nagar Rajasthan Vidyapeeth University,
  Udaipur, INDIA - April 21-23 2012
  System. Accepted for publication in Journal of Extension - 2006
  Images System (under revision). Accepted for publication in Journal of Computers and Electronics in
  Agriculture – 2006
  Technologies, Cancun, Mexico, January 5-8, 2004, pp. 2 -7.
  International Conference on Technology and Education, Tampa, USA, October 10-13, 1999.
8. Peltzverger B., Shah A. Advisor Support System for Distance Learning, Proceedings of the
9. Shah, A.C., Computational Algorithm for Least Squares Estimation of Parameters in
10. Shah, A.C., Some Results for the Normal Manova Linear Functional Relationship Model. Biometrics
    of Repeated Eigenvectors. (unpublished)
12. Shah, A.C. “The uses of computers in different fields”. Contributed chapter (in native language
    GUJARATI) - in the book “Computer Ni Bolbala” (Wonders of Computer) Published by R.R Sheth
    Co., Bombay, 1993

Conference Presentations:

2. Arvind Shah, Boris Peltzverger, Durgesh Vishen – Web-based tool for mapping course learning
   outcomes to program learning outcomes, 88th Annual Meeting of the Georgia Academia of Science,
   “Emerging Trends & Technologies for Knowledge Delivery & Management”

Professional Development

1. Developed new course CIS 4310 Information Systems Project Management.
2. Wrote several proposals for Academic Affairs Committee and Graduate Affairs Committee to update the undergraduate and graduate programs in Computer Science.
3. Created and configured virtual server using Windows 2008 Enterprise OS. Installed application software such as VS 2010, SQL Server 2008 R2, and Terminal services.
4. Online training on Compliance-Assist on February 17, 2012
5. One-Day Workshop on Live Text on Nov. 11, 2011
6. Attended “Games, Education, Modeling and Simulation” Symposium at Columbus State University, Columbus, GA on Oct 8, 2009.
8. Attended workshop on STEM Initiative Institute at Stone Mountain, GA February 27-29, 2009
12. Faculty Development Program Workshop, College of Sciences, College of Computing, Georgia Institute of Technology, March 9-11, 2001
15. Active Learning /Critical & Thinking Workshop at Albany State University, Albany, GA. October 28, 99
16. SBIR/STTR Phase I Proposal Preparation Workshop at Kennesaw State University, October 22, 99

Grant Awards:

- Distinguish Professor Grant 2005-2006 ($1000.00) Virtual Lab for Online Graduate CIS Courses - Dr. Xiang Fu, Dr. Boris Peltsverger, Dr. Arvind Shah.
• Global Partnership for the 21st Century Grant – 2004-2005 ($12,500.00) for International Service-Learning project in collaboration with Columbus State University, Darton College and Bhavnagar University (India).
• FIPSE grant 2004-2008 ($400,000.00) jointly with School of Education for Documenting and Disseminating the Effectiveness of Professional Development Schools in Improving Teacher Quality & Retention, Student Learning & Achievement, Technology Consultant.
• Distinguish Professor Grant 2000-2001 ($2000.00) for Online Graduate Prerequisite Program in Computer Science, together with Dr. Boris Peltzverger and Svetlana Peltzverger.
• Distinguish Professor Grant 1999-2000 ($4000.00) for Advisor Support System-Banner Integration. Together with Dr. Boris Peltzverger.
• Distinguish Professor Grant 1998-1999 ($3000.00) for Advisor Support System: Conflict Resolution System (Schedule, Prerequisites, Quarter - Semester Conversion) together with Dr. Boris Peltzverger.
• Distinguish Professor Grant 1997-1998 ($3083.00) for On-Line Test System: Internet Based Exam in Computer Literacy. Together with Dr. Boris Peltzverger.

Projects Guided:

1. Web based tool for mapping course learning outcomes to program learning outcomes - HNGU students’ project coordinator and Project guide – Summer 2011
2. Creating and Configuring Application Server in Server Farm - HNGU students’ project coordinator and Project guide – Summer 2010
3. Design and Construction of Virtual Lab with Server Farm - HNGU students’ project coordinator and Project guide – Summer 2009
5. Documenting and Disseminating the Effectiveness of Professional Development Schools in Improving Teacher Quality & Retention, Student Learning & Achievement, FIPSE grant 2005-2007, Technology Consultant
6. Dynamic website design - Advanced Environmental Technologies, Albany
7. Website Auditing - WebSynergy, Atlanta
8. Website development - Sowega.net, Sumter Regional Hospital of Americus
9. Design and development of SACS website for GSW

MEMBERSHIP IN PROFESSIONAL AND ACADEMIC ASSOCIATIONS

Member of Georgia Academy of Science since 1999
Member of Association of Computing Machinery since 1999
Member of UPE since 2003
Robert E. Slenker III  
Instructional Technology Coordinator  
Adjunct Instructor  
Georgia Southwestern State University  
800 GSW State University Drive  
Americus, GA 31709  
robert.slenker@gsu.edu

EDUCATION

Master of Business Administration, Georgia Southwestern State University, 2006  
Bachelor of Applied Science in Technology Management, Georgia Southwestern State University, 2004  
Associate of Science in Music and Video Business, Art Institute of Fort Lauderdale, 1995  
Associate of Arts in Fine and Commercial Art, Lake Sumter Community College, 1994  
College Preparatory Diploma, Tavares High School, 1991

EMPLOYMENT

Adjunct, Part-Time Instructor, Georgia Southwestern State University, 2012 – present  
Courses taught: Audio/Video Production Technology 1, Audio/Video Production Technology 1

Instructional Technology Coordinator, Georgia Southwestern State University, 2007 – present  
Manage audio-visual technology in all of the university’s instructional and meeting spaces.  
Manage the university/city of Americus’ government access television channel. Assist faculty and staff with multimedia project creation. Produce all university’s marketing media for television and radio. Oversee video conferencing technology for distance learning. Manage student workers in the IT department. Advise/assist student television production organization.  
Assist CIO and serve in his absence during USG CIO meetings/conferences.

Media Supervisor, Georgia Southwestern State University, 2003 – 2007  
Manage audio-visual technology in all of the university’s instructional and meeting spaces.  
Manage the university/city of Americus’ government access television channel. Assist faculty and staff with multimedia project creation. Produce all university’s marketing media for television and radio. Advise/assist student television production organization.

Video Production Specialist, Georgia Southwestern State University, 1998 – 2003  
Manage the university/city of Americus’ government access television channel. Assist faculty and staff with multimedia project creation. Produce all university’s marketing media for television and radio. Advise/assist student television production organization.

Assistant Producer, Concept Media (now named InfoWorx), 1996 – 1997  
Assist w/ the production of all projects. Schedule shoots, work with clients. Cold call former customers for future media projects. Handle the distribution of company marketing materials. Serve the owner in any capacity necessary.

Intern, Multi Image Group, 1995  
Serve the corporation in any capacity necessary. Make duplications of video tapes. Sit in on edit sessions with clients.

Commission Sales – Shoe department. Demonstrated ability to assist, serve and work with a variety of customers. I had to be personally motivated to generate sales and credit applications from customers. Overseer display of marketing and sales signage. Handle and secure money from customers. Keep track of inventory and order more when needed.

SKILLS, ABILITIES & ACCOMPLISHMENTS
I am an experienced, accomplished video producer, director and editor having produced over 1000 programs for television, radio and the web. I am a talented, motivated professional who works hard and advocates in the best interests of my constituents. I have demonstrated a good relationship with all co-workers and have managed multiple employees. I have worked hard to upgrade all audio-visual technology in my university’s classrooms and meetings rooms. I always stay abreast of new technology that might help us further our mission of providing a caring community of learning. I have served on various committees to plan important campus events, implement new campus initiatives and have served on search committees to find new, talented employees for GSW. I have mentored students and other coworkers in the art of media production. In my personal life, I have also served on various charity and civic organizations. For example, I have served at President of Delta Pi Housing, Inc. a corporation founded to serve the needs of the Chi Phi Fraternity and its alumni. I also served as President of Students in Free Enterprise while working on my graduate degree.

COURSES TAUGHT AT GSW

CIS 2010 (Audio/Video Production Technology 1)
CIS 2020 (Audio/Video Production Technology 2)

COURSE AND PROGRAM DEVELOPMENT

My CIS 2010 and CIS 2020 Audio/Video Production Technology courses didn’t exist before I began teaching them for GSW. I developed both of them from scratch, on my own. These courses are added to the curriculum as free electives for GSW students. GSW students majoring in Computer Science, Information Technology, Communication & Media Arts, and Theater Design & Technology Emphasis are encouraged to take them.

UNIVERSITY SERVICE

Member, University System of Georgia’s CIO Council, 2012 – present
Member, GSW’s Board of Regents Hosting Planning Committee, 2007 – present
Member, GSW’s Web Development Committee, 2007 – present
Member, GSW’s Instructional Technology Advisory Committee, 2007 – present
Member, GSW’s Centennial Planning Committee, 2005 – 2006
Member, GSW’s C.I.R.T. Committee, 2006 – present
Member, GSW Search Committee (Web Developer), 2011
Member, GSW Search Committee (Professor of Communications), 2008
Member, GSW Search Committee (IT/Telecommunications Coordinator), 2006
Member, GSW Search Committee (Professor of Communications), 2005
Member, Rosalynn Carter Institute for Caregiving Annual Summit Planning Committee, 1999 – present

FACULTY, ADMINISTRATIVE & PROFESSIONAL DEVELOPMENT

Webinar: Open Education and Copyright, February 2013
Webinar: Fixing It in Post: Common Sound Issues, January 2013
Webinar: Professional Sound on Any Budget, December 2012
Webinar: Killer Titles in Adobe Premiere Pro CS6, June 2012
Webinar: Format Conversion for File-Based Workflows, April 2012
Webinar: iPhone & iPad Filmmaking Tools, March 2012
Webinar: Streaming Simplified, November 2011
Webinar: Streamline Your Editing Workflow, November 2011
Webinar: Confessions of a Switcher, September 2011
Webinar: Adobe After Effects with Expressions, September 2011
Webinar: Editing Bootcamp: The How & Why of a Cut, September 2011
Webinar: Lighting & Shooting Green Screens, January 2011
Webinar: Building the Edit Room, December 2010
Webinar: Google Apps deployment, December 2010
Webinar: Google Apps at Brown University, August 2010
Webinar: Teaching with Student Response Systems, April 2009
Attended the University System of Georgia’s Annual Technology Conference, Rock Eagle, October 2008
Attended a NewTek TriCaster demo/seminar, Atlanta, GA, February, 2008
Attended the Digital Innovation Group’s Georgia Apple Conference, Georgia College, Milledgeville, GA, April 2007
Attended the Online Lifeline Teaching Conference, Valdosta State University, Valdosta, GA, February 2007
Dr. Alexander Michael Yemelyanov  
Professor of Computer Science  
School of Computing and Mathematics  
Georgia Southwestern State University  
800 GSW State University Drive, Americus, GA 31709  
alexander.yemelyanov@gsu.edu

ACADEMIC DEGREES:

D.Sc. – Systems Engineering, 1991  
Research Aviation Institute, Moscow-Zhukovsky, Russia  
Supreme Certification Board under the Council of Ministers of the USSR

Ph.D. – Computational and Applied Mathematics, 1980  
Russian Academy of Sciences, Dorodnicyn Computing Center, Moscow, Russia

M.S. – Computer Science, 1975, conferred with honors, GPA 4.94/5.00  
Lomonosov Moscow State University, Department of Computational Mathematics and Cybernetics, Moscow, Russia

AFFILIATIONS & CERTIFICATIONS:

- Member of IEEE Systems, Man and Cybernetics Group, USA
- Full Member of Human Factors and Ergonomics Society (HFES), USA
- Full Member (Academician) of International Informatics Academy, 1998
- Awarded the academic status of Full Professor, Committee on Higher School for the Ministry of Science, Higher School, and Technical Policy of the Russian Federation, Moscow, 1992
- Awarded the academic status of Senior Researcher majoring in “Automated Control Systems”, Supreme Certification under the Council of Ministers of the USSR, Moscow, 1989

PROFESSIONAL EMPLOYMENT:

2006 – present  Professor  
GEORGIA SOUTHWESTERN STATE UNIVERSITY, Americus, GA, School of Computing and Mathematics  
- Coordinator of Computer Applications courses.

2001 – 2005  Associate Professor  
GEORGIA SOUTHWESTERN STATE UNIVERSITY, Americus, GA, School of Computer and Information Science  
- Teaching responsibilities include: Human-Computer Interaction & Interface Design (graduate), Decision Support Systems (graduate), Information Storage and Retrieval (undergraduate/graduate), Object-Oriented Analysis & Design (undergraduate/graduate), Design & Analysis of Algorithms (undergraduate/graduate), Concepts of Programming Languages (undergraduate/graduate), Data Structures & Algorithms (undergraduate), Theory of Computation (undergraduate), Discrete Mathematics (undergraduate), Computer Literacy (undergraduate).
2000 – 2001       Adjunct Professor
VIRGINIA COMMONWEALTH UNIVERSITY, Richmond, VA,
School of Business, Department of Information Systems, and
College of Humanities & Sciences, Department of Mathematics and Computer Science
• Teaching responsibilities include Object Oriented Systems Analysis & Design and different mathematical
disciplines within curriculum of the department.

1991 – 2000       Professor, Deputy Chair
1989 – 1991       Associate Professor
PLEKHANOV RUSSIAN UNIVERSITY OF ECONOMICS, Moscow, Russia,
School of Economics and Mathematics,
Department of Mathematical Methods in Economics
 Supervised the research of all 23 faculty members (20 with their Ph.D.). Served as an advisor for graduate
students working on their master degrees as well Ph.D. candidates.
 Designed the curriculum, methodological materials, and taught the following courses: Decision-Making Theory,
Decision Support and Expert Systems, Mathematics (for economic specialization), and wrote special textbooks to
accompany them.
 Oversaw undergraduate and graduate students.
 Served as a liaison for students involved in a joint-degree program with the International Business Studies
program at the Groningen University in Holland. Conducted lectures on mathematics for these students and also
served as a visiting professor to the program in Holland.

1997 - 1999       Professor
BAUMAN MOSCOW STATE TECHNICAL UNIVERSITY, Moscow, Russia,
School of Business Engineering and Management,
Department of Management
 Lectured on mathematical models in management and risk management for undergraduate and graduate students,
supervised the master student theses.
 Prepared the curriculum and methodological materials for three new courses; each was a program in
Management for the technically-oriented student and was tailored to the needs of specific departments.

1982 - 1989       Director, Computer Support Systems Division
MOSCOW RESEARCH INSTITUTE OF PLANNING & MANAGEMENT,
Moscow, Russia
 Developed mathematical models, algorithms, and software for increasing the effectiveness of passenger transport
in Moscow.
 Supervised the construction of two decision support systems for passenger transport in Moscow, which resulted
in a savings of over US $500,000 in municipal expenditures.

1981 – 1987       Adjunct Faculty
MOSCOW STATE UNIVERSITY OF CIVIL ENGINEERING, Moscow, Russia,
Department of Mathematics
 Taught College Algebra, Pre-calculus, and Calculus courses for undergraduate students.

1980 – 1982       Senior Researcher
1975 – 1980       Junior Researcher
STATE COMMITTEE OF SCIENCE & TECHNOLOGY, Moscow, Russia,
The Scientific & Technical Information Center of Russia
 Performed analytical investigations and constructed mathematical models for the purpose of increasing the
effectiveness of collecting and analyzing scientific and technical materials.
 Implemented method which reduced errors of dispatcher, controlling information processes in the Center, by
30%.

COURSES TAUGHT:
• Decision Support and Expert Systems
• Human-Computer Interaction and Interface Design
• Object-Oriented Analysis and Design
• Advanced Computer Graphics
• Information Storage and Retrieval
• Concepts of Programming Languages
• Theory of Computation
• Design and Analysis of Algorithms
PROFESSIONAL INTERESTS

My professional interests include modeling and computer-aided analysis of human performance, decision making, and risk/safety analysis in complex human-machine systems, especially human error analysis.

RESEARCH AND PROJECTS:


1993 – 1995: Principal Investigator for “Expert system for pilot’s error investigation”. Contract project for Scientific-Research Institute of Ministry of Defense and Institute for Information Transmission Problems of Russian Academy of Sciences, Moscow, Russia. Together with Dr. V. Venkov, Dr. M. Kotik, and Dr. V. Smolnikov.

1990 – 1993: Principal Investigator for “Develop an expert system for diagnosing the errors of aviation specialists” Contract project for Center GosNIIGA, Transportation Ministry of Russia, Moscow, Russia. Together with Dr. M. Kotik, Dr. V. Kostikov, and Dr. V. Smolnikov.

1988 – 1990: Principal Investigator for “Implement a new computer-aided system to support human error reduction in air traffic management” Contract project for Air Traffic Control Department of Aeroflot, Moscow, Russia. Together with Dr. Y. Murigin, and A. Dolgonovskiy.

PUBLICATIONS:

Books:

Papers, Proceedings, and Abstracts:


89. Yemelyanov A. “Method for analysis of human behavior through use of frames and special modal logic” Ph.D. Dissertation, Moscow, Russia, 16 p.


**Algorithms and Programs**


Dr. Simon Baev
Assistant Professor
Department of Computer Science
Georgia Southwestern State University

Phone: (229) 931-2819
E-Mail: simon.baev@gsu.edu

EDUCATION

University of Alabama in Huntsville
Ph.D. in Electrical Engineering
  • Dissertation: "Causal Output Feedback Tracking in Nonminimum Phase Systems Using Sliding Mode Techniques"

University of Alabama in Huntsville
M.S. in Computer Engineering

South Ural State University, Chelyabinsk, Russia
M.S. in Electrical Engineering
  • Thesis: "Microprocessor Driven Control of Inductor Motors"

South Ural State University, Chelyabinsk, Russia
B.S. in Electrical Engineering

TEACHING

Courses taught at Georgia Southwestern State University
  August 2008 – Present
  
  CIS 1000  Computer Applications
  CSCI 3100  Introduction to Computer Organization
  CSCI 3200  UNIX
  CSCI 4100  Computer Architecture
  CIS 4200  Computer Security
  CSCI 4200  Design of Operating Systems
  CSCI 4210  Data Communication and Networking
  CSCI 4310  Object Oriented Programming
  CSCI 4940  Capstone Projects
  CSCI 5120  Topics in Information Security
  CSCI 6220  Distributed Operating Systems
  CSCI 6900  Concepts of OpenSource software development

Courses assisted at University of Alabama in Huntsville
  January 2005 – August 2008
  
  Electrical Circuit Analysis I
  Solid State Fundamentals
  Introduction to Control / Robotic Systems
  Electronic Devices & Design Laboratory

Advising
  August 2008 – Present

Bachelor of Computer Science
Peer Reviewed Journal Papers


Peer Reviewed Book Chapters


Peer Reviewed Conference Papers


converter,” in *Proceedings of SEC’08*, (Huntsville, AL, USA), 2008


Grants and Presentations

- Participation in AT&T grant ($25,000)  
  Spring 2011 – Spring 2012
- Presentation for the *Academy for Future Teachers (AFT)*: "Introduction to Robotics"  
  Summer 2011
- Presentation for *Chamber of Commerce*: "Cost-efficient Desktop Virtualization"  
  Spring 2012

**University Service**

**Participation in Committees**

- Security and Technology Task Force, *member*  
  Fall 2010
- Distance learning task force, *member*  
  Spring 2012
- ITAC committee, *member*  
  Fall 2010 – Spring 2012
- Faculty Senate, *member*  
  Fall 2010 – Spring 2013
- Honor Convocation Committee, *member*  
  Spring 2010 – Spring 2013
- Committee on Student Affairs, *member*  
  Fall 2012 – Spring 2013

**Representation of GSW**

- Represented GSW on the Operational Board of the WebBSIT program  
  Fall 2011 – Present

**Additional professional service**

- Supervised project for exchange students from North Gujarat University, India  
  May 2009
- Prepared and conducted Computing Summer Camp in Robotics for mid-school students  
  June 2009
- Setup pilot virtual infrastructure based computing laboratory  
  Fall 2009 – Spring 2010
- Installed and prepared for production OpenSource course management  
  Spring 2010 – Spring 2011
- Improved virtual computing virtual computing infrastructure  
  Fall 2010 – Spring 2012
- Set up the Document Management System  
  Fall 2011
- Completely re-designed and re-implemented virtual computing infrastructure  
  Fall 2012
- Set up a website supporting registration process for the Math Tournament  
  Spring 2013

**Faculty Development**

- GSW Faculty Development Grant (Presentation at ACC’09)  
  Fall 2009
- GSW Faculty Development Grant (Presentation at FECS’12)  
  Fall 2012
- GSW Faculty Development Grant (Presentation at USG Teaching and Learning Conference)  
  Spring 2013
Karen Streetman Cook  
Senior Lecturer  
School of Computing and Information Science  
Georgia Southwestern State University  
800 GSW State University Drive  
Americus, GA 31709  
karen.cook@gsu.edu

EDUCATION

08/00  Network+ Certification
06/99  Master of Science in Computer Science, Georgia Southwestern State University, Americus, GA.
06/93  Bachelor of Science in Computer Information Systems, Georgia Southwestern College, Americus, GA
09/90  Associates of Applied Sciences Degree, Georgia Southwestern College, Americus, GA
09/89  Diploma in Computer Programming/Micro-Computer Specialist, South Georgia Technical Institute, Americus, GA
05/88  College Prep Diploma, Southland Academy, Americus, GA

EXPERIENCE

07/09 – Present  
Senior Lecturer, Georgia Southwestern State University, Americus, GA  
Instructor, Georgia Southwestern State University, Americus, GA  
Develop and teach classes in programming (introduction and advanced, C++ and C#), interface & configuration, computer literacy, software engineering, computer ethics, and information resource management, Faculty Advisor for the IT (former CIS) program, Advisor for Bainbridge 2+2 Program, Advisor and Instructor for WebBSIT program, Faculty Advisor for Upsilon Phi Epsilon, Faculty Advisor for CIS Computing Club, member of University and Alumni Affairs committee, Homecoming committee, Centennial committee, Instructional Technology committee, Presidents Advisory Team, and Faculty Senate, Technology Support Representative for the School of CIS, Web Master for Human Relations Council, train and mentor programming competition teams, and various other duties as assigned.

08/99- 03/01  
Instructor, South Georgia Technical College, Americus, GA  
Develop and teach classes on Microsoft Office products, networking, internet technology, computer and system concepts, and various programming languages, advise and register students, assist students and other personnel with computer related tasks, assist in the maintenance and upkeep of computer labs, and various other duties as assigned.

07/97- 08/99  
Director of Campus Card Services, Middle Georgia College, Cochran, GA  
Develop and maintain operating policies and procedures for all card operations. Responsible for hiring, training, supervising, and evaluating card office employees, assist in developing and maintaining departmental budget, maintain all hardware, software, and system reader devices, maintain database using AT&T Campus Wide ID database system running on UNIX X, on a HP9000 system.
03/97- 07/97  **System Manager, Lockheed Martin, Americus, GA**
Maintain and support a MPE/iX operating system for a HP3000/928, a Growthpower Manufacturing database which includes shop floor control with bar code readers, a Novell 4.1 operating system, CCmail with Internet services, TCPIIP protocol using Netscape as the Web browser, and setup and maintain all personal computers, printers, and HP terminals.

11/95- 03/97  **Information Systems Specialist, Northeast Sales Distributing, Athens, GA**
Provide support for all users on a UNIX system and on personal computers, maintain computers, printers, and software, create and maintain handheld computers for all salesmen, train and provide support for users, create and run reports.

10/94- 11/95  **P & R Teller, Bank South, Athens, GA**
Assist customers with deposits, withdrawals, check cashing and other banking needs, maintain ATM machines, night drops, and mail deposits.

11/92- 09/94  **Information Services Assistant Supervisor, Sumter Regional Hospital, Americus, GA**
Train and supervise Computer Specialist in the department, provide support for all computer users, monitor time and attendance system, order terminals, computers, printers, software, and other necessary items for the departments, build screens and reports, set up new departments and maintain existing ones in the hospital and remote sites.

**PROFESSIONAL ORGANIZATIONS**

08/01 -Present  Upsilon Pi Epsilon (UPE) - Faculty Advisor and Faculty Member

08/01 -Present  Association for Computing Machinery (ACM)
Wm. Royce Hackett
Director/ Chief Information Officer
Information & Instructional Technology
Georgia Southwestern State University
Americus, GA 31709
Office Phone: 229-931-2641
email: royce@gsw.edu

QUALIFICATIONS FOR ADMINISTRATIVE POSITION

ADMINISTRATIVE POSITIONS HELD

2007 - present  Director/ Chief Information Officer
Information & Instructional Technology
Georgia Southwestern State University

Responsible for serving as the Chief Information Officer. Also responsible for the integration of technology into the instructional and administrative missions of the University. The Director provides leadership in the identification, justification and articulation of plans for information technology, analyzes the changing information technology needs of the faculty, staff, and students in order to improve the delivery of technology support and services. The Director supervises the Information and Instructional Technology Department staff, including support staff in instructional support (including campus television station, distance learning facilities, and faculty and staff development), network services (including technology security), systems development and enterprise systems (student records, financial applications, e-mail, web services, server administration) and user support service.

2004 - 2007  Manager of Instructional Technology Department/ Co-Director Information & Instructional Technology
Georgia Southwestern State University

Starting in July of 2004, acted as Interim Chief Information Officer and Co-Director of Information & Instructional Technology, filling the position vacated by the Director of Information & Instructional Technology.
2002 - 2004
Manager of Instructional Tech
Georgia Southwestern State University

Responsible for managing the support of the University’s instructional technology needs. Coordinated designed, installed, and supported the University’s “model” classrooms and managed the faculty/staff development lab; upgraded instructional facilities campus wide. Provided leadership for cable programming and video production as well as administrative support for distance education programs via videoconferencing, satellite and land-based systems. Provided consultation and training for presentation enhancement for academic purposes as well as state-of-the-art applications for integrating technology into the curriculum. Provided presentation production and support in accordance with institutional priorities.

1997 - 2002
Instructional Technology Coordinator

Worked as assistant to the Director of the Instructional Technology Center to coordinate and implement the use of instructional technology and other electronic media, campus-wide. Managed the operation of GSW-Television. Supervised students using the television studio production and video editing facilities. Assisted faculty, staff, administration and students with video production and presentation, including the production of promotional or marketing materials for GSW. Investigated and implemented the acquisition of educational programming for air on campus television station or use in the classroom. Worked to create GSW-TV programming for customer base. This involved employment, training and mentoring of students assigned to specific programs and locations. Coordinated the programming of satellites to downlink program feeds for live teleconferences and classroom use.

1990 - 1997
Consulting Broadcast Engineer
Simmons Communications
Columbus, GA

As the most senior engineer in this four-person operation, responsibilities included all facets of audio-visual service to radio and television broadcast facilities. Range of technology supported included satellite systems as well as all varieties of broadcast equipment such as computer-networked automation control units, cameras, video tape gear, switchers and studio production/distribution equipment. Responsible for turn-key broadcast facility installations (studio, transmitter and tower).
1988 - Chief Engineer  
1990 WRBL Channel 3  
Columbus Broadcasting Co.

Manager of a network affiliate Engineering Department responsible for 11 man staff of studio and transmitter technicians and control room operators. Accountabilities included supervision of the maintenance of all technical equipment to include the transmitting plant as well as the studio facility. Also responsible for department budgeting and procurement of all new equipment.

1979 - Assistant Chief Engineer/ Maintenance Technician  
1988 WRBL Channel 3  
Columbus Broadcasting Co.

Responsible for maintenance of the 25 kilowatt VHF Harris transmitter, all studio cameras, video tape machines, and video processing and distribution equipment. Supervised control room operators. Worked with the news department to maintain the ENG equipment. Provided technical support for all studio systems. Installed the first computer-controlled satellite downlink system in Columbus based on dual DEC PDP-11 computers.

ACADEMIC APPOINTMENTS AND EDUCATION

2003 - Instructor – School of Computing and Mathematics  
2004 Master of Science in Computer Science - Georgia Southwestern State University  
2001 Bachelor of Science - Magna Cum Laude - Georgia Southwestern State University  
1986 Associate in Applied Science – Electronics Technology – Columbus State University  
1980 Two-Year Technical Certificate - Communications and Digital Technology - Columbus Technical Institute

2004 - Member – Administrative Committee on Information Technology - Georgia Board of Regents  
1997 - Member – Instructional Technology Advisory Committee – Georgia Southwestern State University

1990 Senior Broadcast Engineer - certified by exam - Society of Broadcast Engineers  
1988 Broadcast Engineer, certified by exam, Society of Broadcast Engineers  
1980 FCC First Class Radio Operator License -certified by exam
Brian L Campbell  
Adjunct Instructor of Computer Science  
126 Star Flower Court  
Apex, NC 27539  
USA  
Email: brianlee.campbell@gmail.com  
Cell: 229 – (944) - 0086

Education

College/University  
**Auburn University (09/15/2008 – 2010) incomplete**  
Auburn, Alabama  
United States  
Degree: PhD - Major: Computer Science & Software Engineering  
GPA: 3.8

College/University  
**Georgia Southwestern State University (06/01/2004 - 06/01/2006)**  
Americus, Georgia  
United States  
Degree: Master of Science - Major: Computer Science and Software Engineering  
GPA: 3.8

College/University  
**Georgia Southwestern State University (09/01/1993 - 06/01/2004)**  
Americus, Georgia  
United States  
Degree: Bachelor of Science - Major: Computer Science  
GPA: 2.87

Professional Employment

**Georgia Southwestern State University (01/01/2003 - Present) – Computer Science Instructor**  
Americus, Georgia  
United States

- Duties:
  - Teach multiple under-graduate and graduate level Computer Science and Computer Information Technology courses including: Software Engineering, Advanced Software Engineering, Internet Technologies, JavaScript, Ruby, Perl, PHP, XML, .NET, HTML/XHTML, and MS Office 2010

**Securboration Inc. (02/01/2011 – Present) – Senior Solutions Architect**  
Robins Air Force Base, Georgia and Raleigh, NC  
United States

- Duties:
  - Developed an automated solution for dynamically ingesting web service WSDLs from published web services, building behavioral models based on the WSDLs and populating the behavioral models via dynamic execution of WSDL operations for use in behavioral pattern and data analysis tools.
  - Designed ISR analytic solutions for structured and unstructured data (documents, signal data, databases, web sites, etc...) using Natural Language Processing (NLP) and information
- Clustering techniques implemented via Geographic Information System (GIS) visualizations. Projects developed included system integration solutions with the Combined Information Data Network Exchange (CIDNE) system.

- Lead the research and development of many-core (100s – 1000s of cores) Operating System kernel enhancements for high performance computing environments using the Tilera TilePro 64 core and Intel Single Chip Cloud processors. The results of this effort included the development of kernel enhancements for multi-core operating systems.

- Design and develop semantic solutions for Defense Intelligence projects under the supervision of the US Army Core of Engineers and Air Force Research Laboratories using open source technologies for Unstructured Information Management Architectures, a wide variety of sensor data aggregation and analysis, and algorithm designs used for the clustering and analysis of intelligence, surveillance and reconnaissance (ISR) data.

- Designed and implemented an enterprise-wide solution for automating catalog entries and updates for unstructured data (documents) to the Defense Common Ground System (DCGS) Integrated Backbone (DIB). This effort included publishing meta-cards on topically clustered documents to the DIB for quicker intelligence discovery. We also, used a customization of Ozone Widget Framework (OWF) for visualization and Geo-mapping based on information retrieved from the DIB.

- Served as Principle Investigator on multiple DOD SBIR and STTR proposals.


- Developed semi-automated ontology Eclipse plug-ins for TopBraid to be used by intelligence analysts for the automated growth of knowledge bases using unstructured documents as the source data.

- Analyze business, information, and technical requirements to develop “as-is” and “to-be” target enterprise architectures using Microsoft technologies as an enabler. Provide analysis of business requirements versus current system capabilities and develop integrated solutions across multiple platforms to fulfill business needs of the US Air Force Reserve Command Headquarters. Documented requirements and designed the solution architecture and test cases for an Enterprise Decision Support System.

- Serve as IT Consultant for engagements involving outside organizations, including Air Force EA Program office and the DoD Business Enterprise Architecture.

- Lead Architect & Program Manager for enterprise Data and SOA projects at the AFRC. Provide monthly metrics on progress of projects including forecasting of planned and earned value.


- Provided support for the AFRC CIO regarding enterprise initiatives and served in an advisory role on the CIO board.

**Citizant Inc. (09/20/2010 – 02/01/2011) - Enterprise Architect**
Robins Air Force Base, Georgia  United States

- Analyze business, information, and technical requirements to develop "as-is" and “to-be” target enterprise architectures using Microsoft technologies as an enabler.
- Provide analysis of business requirements versus current system capabilities and develop integrated solutions across multiple platforms to fulfill business needs of the US Air Force Reserve Command Headquarters.

- Deliver enterprise level solutions for content and document management

- Help establish business performance metrics and measures to ensure modernization efforts support key business objectives.

- Perform gap analysis and develop transition and sequencing plans to guide modernization initiatives from current state to target architecture.

- Identify opportunities to optimize IT investments and align IT investments to target enterprise architecture.

- Provide technical thought leaderships in the use of the EA for decision-making and justification in the Capital Planning and Investment Control (CPIC) process.

- Assist modernization projects to conform to EA policies, procedures and standards and align to agency’s target architecture throughout the development lifecycle.

**QinetiQ North America (02/01/2008 – 09/10/2010) – Enterprise Solutions Architect**  
Fort Rucker, Alabama United States

- **Duties:**

  - Served as the senior architect for over 200 systems, 15 applications, 45 databases and a 70 terabyte storage area network (SAN) at the US Army Combat/Readiness Center (USACR/SC).  Primary IT consultant regarding acquisitions and investments for an IT budget of over $10 million per year


  - Designed and implemented a “warm” disaster recovery site for using HP SAN to SAN replication and MS Hyper-V virtualization.

  - Provided DoD and Army acquisition process guidance/support and developed architectural documentation for the DoD Business Transformation Agency certification of systems residing at the US Army Combat Readiness/Safety Center

  - Served as an Information Assurance Officer and secondary site Certified Information System Security Professional (CISSP) for all systems, applications and databases at the US Army Combat/Readiness Center

  - Designed and developed software and database architectures using tools such as Sparx’s System Enterprise Architect, IBM Rational System Architect, Microsoft SQL 2008 and Visual Studio 2010 C# and Visual Basic.

  - Designed and developed a common Service Oriented Architect (SOA) framework for information sharing that adheres to DISA regulations using DOD PKI.

  - Developed policies, procedures and business processes that govern IT and IA acquisition, programming, asset management, configuration management, release management and the overarching IT strategic plan

  - Designed and implemented customized software development life-cycle methodologies and processes that exhibit traits essential for a successful project including usability, reliability, maintainability, performance, security standards, and agility.
- Served as the primary consultant for shared infrastructure and applications to reduce costs and improve information flows; and ensure that projects do not duplicate functionality or diverge from each other and business and IT strategies.

**Westar Aerospace and Defense Group, Inc. (04/01/2007 – 02/01/2008) – Senior Software Architect and Engineer**  
Daleville, Alabama   United States

- Duties:
  - Served as the technical lead on a 2 year, $3.3 million dollar software development project for the US Army Combat/Readiness Center using Microsoft .NET technologies and methodologies.
  - Served as the system administrator for the Daleville, Alabama branch of Westar’s software engineering group.
  - Designed software architectures that were consistent with best practices in maintainability, scalability, portability, reliability and security using the Microsoft .Net Framework 3.0.

**Southwest Georgia Technology Services (03/01/2006 - 02/01/2008) - Software Engineer**  
Americus, Georgia   United States

- Duties:
  - Responsible for the architecture, design, and implementation of an informational kiosk used for the promotion of wine and food sales in various supermarket retailers using MS .NET WinForms.
  - Responsibilities include the IT administration of all application and web servers necessary for web site advertisement and post-delivery maintenance of all kiosk installations and the design of Information Assurance and Security strategies for the enterprise.

**Web-i-Tech - GSW Research and Dev. (01/15/2000 - 04/01/2007) - Software Engineer and Systems Administrator**  
Americus, Georgia   United States

- Duties:
  - Responsible for the architecture and design of a NASA funded project implemented by GSW University. Developed 4 prototype games and a web site designed following the specifications as set forth in the NASA grant. The prototype was designed in order to secure the Personally Identifiable Information of students. In addition to the development of the project, responsibilities included the co-ordination of the evaluation and usability study, during which 71 high school students from the Upward Bound program were used to play and evaluate the games by completing pre and post game surveys.
  - Responsible for the design and development of Kiosk software and systems using MS .NET technologies. Built a cost competitive retail software company, focused on secure self-service interactive kiosk solutions, that is capable of competing with offshore outsourcing alternatives, such as India, Russia, or the Philippines. Created a self-serving transactional kiosk for dispensing cell phones for Motorola Inc. via virtual human assisted navigation (e.g. Avatar Technology), a kiosk utility bill pay system currently used in Russia, and an
informational kiosk currently being used in 9 Whole Foods Market Corporation locations across the country. Along with various kiosk applications, hardware drivers were developed for linear and omni-directional barcode scanners, receipt printers, and CashCode cash acceptors.

- Responsible for the development and maintenance of the Professional Development of Schools (PDS) site; supported by a grant from the U.S. Department of Education Fund for the Improvement of Post Secondary Education. The National Consortium of Professional Development Schools (NCPDS) provides a comprehensive, easily accessible, and practice-informed resource through which institutions can contribute to and learn from each other's experiences within the highly contextualized and complex work of PDS.

- Developed and maintain the Georgia Southwestern State University CIS web site for aesthetics and implemented an automated online class semester orientation for the addition and deletion of offered classes per semester.

- Responsible for the development, updates, maintenance, and event scheduling of the Rosalynn Carter Institute for Caregivers IT systems.

**Accelerated Technologies, Inc. (03/01/1994 - 01/15/2003) – Senior Technician**

Americus, Georgia  United States

- Duties:
  - Managed the responsibilities and quality of service for 11 technicians
  - System Administrator for multiple local and state businesses and organizations
  - Systems Analyst duties including the design, configuration, and security of networked systems
  - Chartered an IT emergency response system for contracted clients
  - Troubleshooting problems with DOS, Windows 3.1, 95, 98, ME, 2000, XP, and Macintosh
  - Repaired compact systems such as laptops and PDAs
  - Administered and maintained user accounts on a Linux Red Hat v5 system for a local Internet Service Provider
  - Installed and maintained CAT 5, BNC, Token Ring, Wireless, and Fiber Optic Networks
  - Designed and implemented Information Assurance and Security strategies for local and state government businesses

**Publications**

- *Pico-kernel Adaptive and Scalable Operating System*, Air Force Research Laboratory, STTR Topic OSD 11-T04 FTR
- *Making Failure the Mother of Success*, Frontiers in Education Conference
- *Innovative Student Recruiting Approaches for Smaller and Liberal Arts Institutions*, 10th Annual National Collegiate Inventors and Innovators Alliance
Certifications, Awards and Training

- Training – Ontology Workshop (11/12/12)
  - 16 hours
  - Securboration, Inc. Workshop on Semantic Tech and High Performance Computing
  - Presenter for High Performance Computing topic: Many-core Systems

- Training – Ontology Workshop (11/3/11)
  - 16 hours
  - Securboration, Inc. Workshop on UIMA and Ontology

- Training – AFIT 283 Course (4/15/2011)
  - 16 hours
  - Air Force Institute of Technology Course for Enterprise Architecture

- Certification – CISSP (11/03/2009)
  - 120 Hours

- Certification – Information Systems Level I Acquisitions (08/28/2009)
  - 240 Hours
  - Fulfilled all requirements for the Defense Acquisition University Level 1 acquisitions certification of information systems.

- Certification – ACQ 101 (06/12/2009)
  - 120 Hours
  - Certification of the completion of course on Fundamentals of Systems Acquisitions Management via Defense Acquisition University DAU

- Certification – IRM 101 (08/28/2009)
  - 120 Hours
  - Information Resource Management course for the Level I information systems acquisition certification.

- Training – Microsoft Office SharePoint Server 2007 Administration
  - 40 Hours
  - SharePoint Server 2007 Admin training directly from onsite Microsoft Certified SharePoint Architect

- Positive Education – Regular Member of Defense Acquisition University Alumni Association (06/24/2009)

- Certification – Fundamentals of System Acquisition Management (06/12/2009)
  - Defense Acquisition University ACQ101 course Certificate of Completion

  - 40 Hours
  - US Army Information Assurance Security Officer course Certificate of Completion

- Training – DoD Information Assurance Awareness (11/15/2008)
  - DoD Information Assurance Awareness course Certificate of Completion

- Training – DoD Architecture Framework Implementation (03/15/2008)
  - 40 Hours
  - DoD Architecture Framework Implementation version 1.5 of the DODAF course via AFCEA Certificate of Completion
- Training - Windows Presentation Foundation (07/15/2008)
  - 40 Hours
  - Windows Presentation Foundation for Microsoft Technologies
- Training - Windows Workflow Foundation (07/01/2008)
  - 40 Hours
  - Windows Workflow Foundation for Microsoft Technologies
- Award - Most Outstanding Services (06/01/2006)
  - Awarded Most Outstanding Services to the Department of Computer and Information Sciences at Georgia Southwestern State University honors convocation
- Positive Education - Upsilon Pi Epsilon Honor Society (09/15/2006)
  - Member of Upsilon Pi Epsilon, Honor Society in the Computing and Information Disciplines
- Award - Computer Science Seminar Speaker (01/15/2006)
  - Honored as Computer Science Seminar Speaker at Georgia Southwestern State University
- Award - Most Outstanding Work on Motorola Grant Project (06/15/2004)
  - Awarded Most Outstanding Work on Motorola Grant Project at Georgia Southwestern State University honors convocation
- Training - Supporting Microsoft Windows NT Server 4.0 (06/15/2000)
  - Supporting Microsoft Windows NT Server 4.0 Enterprise Technologies course Certificate of Completion
- Training - Internetworking Microsoft TCP/IP (06/15/2000)
  - Internetworking Microsoft TCP/IP on Microsoft Windows NT 4.0 course Certificate of Completion
- Training - Administering Microsoft Windows NT 4.0 (06/15/2000)
  - Administering Microsoft Windows NT 4.0 course Certificate of Completion
- Training - Supporting MS NT 4.0 (06/15/2000)
  - Supporting Microsoft NT 4.0 Core Technologies course Certificate of Completion
- Training - Web Server IIS 4.0 (06/15/2000)
  - Creating and Managing a Web Server Using Microsoft Internet Information Server 4.0 course Certificate of Completion
- Training - Networking Essentials (06/15/2000)
  - Networking Essentials course Certificate of Completion
- Certification - A+ Certification (06/01/1999)
  - A+ Service Technician Certification
Curriculum Vitae

Alla A. Yemelyanov

Business and Mailing Address
Information & Instructional Technology Department
Georgia Southwestern State University
800 Georgia Southwestern State University Drive, Americus, GA 31709
Email: alla.yemelyanov@gsu.edu

ACADEMIC DEGREES:

Ph.D. (2005) – Management (concentration in Management Information Systems)
Russian Academy of Sciences

Georgia Southwestern State University (outstanding student award)

Moscow State Financial University

PROFESSIONAL EMPLOYMENT:

01/2007 – present  Distance Learning and Instructional Technology Center Coordinator
GEORGIA SOUTHWESTERN STATE UNIVERSITY, Americus, GA,
Information and Instructional Technology (IIT) Department
• Provides instructional technology support and training to faculty, staff, and students in
  the use of instructional technology, including software applications and web-based
  technologies, by developing and conducting classes, workshops, and webinars.
• Serves as an administrator for GeorgiaVIEW (D2L), GoVIEW (former
  GeorgiaONmyLine), and as EC and RACDE representative.

01/2007 – present  Part-time faculty
GEORGIA SOUTHWESTERN STATE UNIVERSITY, Americus, GA,
School of Computing and Mathematics
• Teach the Computer Applications course through the use of business application
  projects and software for word processing, spreadsheet modeling, database
  management, and PowerPoint presentation.

2005 – 2007  Account Administrator
ZAVATA Inc (formerly STI Knowledge, Inc., Americus, GA
• Managed supports and troubleshooted the various information technologies.
• Researched and resolve customer requests and problems and provide technology-based
  solutions.
• Represented STI Knowledge, Inc. in a broad range of customer contacts and transactions.

2000 – 2001  Operation Analyst/ Reconciler
SUN TRUST BANK, Richmond VA
• Created and maintain operational reporting and work queues, reconcile accounts and
  other assets.
- Analyzed data sources and design queries to extract data for operational reporting utilizing SQL and MS Access.

1996 – 1999  **Assistant Professor**  
*PLEKHANOV RUSSIAN UNIVERSITY (ACADEMY) OF ECONOMICS*  
*School of Economics and Mathematics, Moscow, Russia*  
- Taught courses in the area of Management, Management Information Systems, System Analysis and Design

1996 – 1998  **Editor in Charge, Finance**  
*Accounting Publishing House, Moscow, Russia*  
- Reviewed, revised, and edited quarterly magazines *Accounting and Banks* and *Accountant and Computer*, which educate accountants about skills necessary to use computers in the modern workplace.

1986 – 1996  **Editor in Charge, Finance and Informatics**  
*Finance and Statistics Publishing House, Moscow, Russia*  
- Edited specialized instructional and educational materials, such as textbooks and workbooks, and other materials in the area of banking and management.  
- Coordinated book design and production activities and conferred with authors and publishers to arrange marketing details.

1984 – 1986  **Lector**  
*Moscow State Financial University, Moscow, Russia*  
- Taught courses and conducted research in the area of Banking, Management, and Econometrics.

**RESEARCH INTERESTS**

My research interests include interregional migration analysis, estimation and decision making. In particular, I analyzed the forced migration at the post-soviet space with socio-economic and geopolitical factors of its transformation. The obtained results were published in several refereed publications including a book and monograph.

**TEACHING INTERESTS:**

- Information Systems for Management  
- Principles of Management  
- Computer Applications  
- Electronic Commerce  
- System Analysis and Design

**PROFESSIONAL MEMBERSHIPS AND CERTIFICATIONS**

- Member of International Decision Sciences Institute  
- Blackboard Vista 3.0 and Vista 8 Certified Administrator  
- Blackboard Certified Trainer
REFEREED PUBLICATIONS:

Book:

Monograph:
Yemelyanov, A. A., *Migration of population in Russia and Belarus before and after Revolution in 1917*, Russian Academy of Sciences, Moscow, Russia, 2003, 63 pages.

Papers, Proceedings, and Abstracts:

1. Yemelyanov, A. A

PRESENTATIONS:

“Improving Teaching and Learning by Adapting the Course Management System”.
Distance Learning: The "Now" Frontier
September 23-24, 2010, Columbus State University
DEVELOPMENT:

1. *Distance Learning: The "Now" Frontier*. September 23-24, 2010, Columbus State University


3. *Respondus LockDown Browser: Reduce Cheating During Online Tests*. 
   Online Webinar, September 27, 2012

Appendix 2 - Degree Statistics

**Fall Major for First-time Full-time Freshmen Enrollment**

<table>
<thead>
<tr>
<th>Computer and Information Science</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS computer information systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSBS BS - computer science</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>7</td>
<td>6</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>ITCM info tech - multimedia option</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITCB info tech - business option</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEC Information Technology</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CTEC computer technology</td>
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<td></td>
</tr>
<tr>
<td>subtotal</td>
<td>5</td>
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<td>17</td>
<td>15</td>
<td>9</td>
<td>17</td>
<td>17</td>
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<tr>
<td>Percent of Cohort</td>
<td>1.29</td>
<td>3.35</td>
<td>3.91</td>
<td>3.16</td>
<td>2.23</td>
<td>4.55</td>
<td>4.84</td>
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</table>

**New Transfer Enrollment**

<table>
<thead>
<tr>
<th></th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
<th>13-14</th>
<th>-</th>
<th>1-yr % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCS/BSIT</td>
<td>14</td>
<td>11</td>
<td>17</td>
<td>13</td>
<td>20</td>
<td>20</td>
<td>31</td>
<td></td>
<td>55.0</td>
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</table>

**Fall Semester Undergraduate Enrollment**

<table>
<thead>
<tr>
<th>Computer and Information Science</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS computer information systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSBS BS - computer science</td>
<td>9</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITCM info tech - multimedia option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITCB info tech - business option</td>
<td>27</td>
<td>33</td>
<td>45</td>
<td>51</td>
<td>53</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>ITEW info tech - prof writing option</td>
<td>4</td>
<td>20</td>
<td>11</td>
<td>13</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEC information technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBIT information tech web-based</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>subtotal</td>
<td>55</td>
<td>68</td>
<td>82</td>
<td>108</td>
<td>102</td>
<td>106</td>
<td>130</td>
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</table>
### Average Class Size (Lower Level) – BSCS/BSIT

<table>
<thead>
<tr>
<th>Sem.</th>
<th>Fall 06</th>
<th>Fall 07</th>
<th>Fall 08</th>
<th>Fall 09</th>
<th>Fall 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>12</td>
<td>23.92</td>
<td>12</td>
<td>21.58</td>
<td>13</td>
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<tr>
<td>F2F</td>
<td>9</td>
<td>24.11</td>
<td>8</td>
<td>21.25</td>
<td>6</td>
</tr>
<tr>
<td>OL</td>
<td>3</td>
<td>23.33</td>
<td>4</td>
<td>22.25</td>
<td>6</td>
</tr>
</tbody>
</table>

### Average Class Size (Upper Level) – BSCS/BSIT

<table>
<thead>
<tr>
<th>Sem.</th>
<th>Fall 06</th>
<th>Fall 07</th>
<th>Fall 08</th>
<th>Fall 09</th>
<th>Fall 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>10</td>
<td>9.90</td>
<td>8</td>
<td>7.00</td>
<td>8</td>
</tr>
<tr>
<td>F2F</td>
<td>8</td>
<td>9.75</td>
<td>4</td>
<td>8.00</td>
<td>5</td>
</tr>
<tr>
<td>OL</td>
<td>2</td>
<td>10.50</td>
<td>4</td>
<td>6.00</td>
<td>3</td>
</tr>
</tbody>
</table>
### 1-YR Retention of First-Time Freshmen

<table>
<thead>
<tr>
<th></th>
<th>Fall 2012 FT and PT Cohort</th>
<th>Within Same Major</th>
<th>Within Same Department - Different Major</th>
<th>Within Institution-Department</th>
<th>Total</th>
<th>New Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Information Science</td>
<td>EITEC Information Technology</td>
<td>4</td>
<td>2</td>
<td></td>
<td>2</td>
<td>ENGR, ITCB, ITCM</td>
</tr>
<tr>
<td>ITEC Information Technology</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td>ENGR, ITCB, ITCM</td>
</tr>
<tr>
<td>ITCM info tech - multimedia option</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>ENGR, ITCB, ITCM</td>
</tr>
<tr>
<td>ITCB info tech - business option</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>ENGR, ITCB, ITCM</td>
</tr>
<tr>
<td>CSBS BS - computer science</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>ENGR, ITCB, ITCM</td>
</tr>
<tr>
<td>CTEC computer technology</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>ENGR, ITCB, ITCM</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>18</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td><strong>Retention</strong></td>
<td>44.44</td>
<td>11.11</td>
<td>5.56</td>
<td>61.11</td>
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</table>
### 1-YR Retention of New Summer and Fall Full-time Transfers (including 2nd Degree Students)

<table>
<thead>
<tr>
<th>Computer and Information Science</th>
<th>Enrolled Fall 2011</th>
<th>Graduated Before Fall 2011</th>
<th>Total Graduated or Retained in 1-Year</th>
<th>New Major Fall 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEC Information Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITCM info tech - multi media option</td>
<td>2</td>
<td>2</td>
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<td>ITCM</td>
</tr>
<tr>
<td>ITCB info tech - business option</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>ITCW</td>
</tr>
<tr>
<td>CSBS BS - computer science</td>
<td>7</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>WBIT information tech web-based</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>subtotal</strong></td>
<td>15</td>
<td>10</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Retention</strong></td>
<td>66.67</td>
<td>13.33</td>
<td>0</td>
<td>80.00</td>
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</tbody>
</table>
## Graduation Rates Fall 2007 Cohort

<table>
<thead>
<tr>
<th>Undergraduates</th>
<th>Major at Fall 2007</th>
<th>Major at Students' Last Enrolled Term</th>
<th>Graduated in 4 years (thru SU11)</th>
<th>Graduated in 5 years (FA11-SU12)</th>
<th>Graduated in 6 years (FA12-SU13)</th>
<th>Total Graduated in 6 Years (Official Rate)</th>
<th>Students* who did not Graduate in 6 years</th>
<th>FT Students who Graduated in 6 Years from a Transfer Institution (=transfer degree or major)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Information Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CINS</td>
<td>computer information systems</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CSBS</td>
<td>BS – computer science</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CTEC</td>
<td>computer technology</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>ITCB</td>
<td>info tech – business option</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>ITEC</td>
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<tr>
<td>subtotal</td>
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<td>9</td>
<td>2</td>
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<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*) Students who did not graduate in 6 years, but were enrolled in at least one term during FA12-FA13

### Number of Graduates

<table>
<thead>
<tr>
<th>Year</th>
<th>Graduates BSCS</th>
<th>Graduates BSCIS</th>
<th>Graduates BSIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>8</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>2008</td>
<td>8</td>
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<td>2009</td>
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<td>2010</td>
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<td>2013</td>
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</tr>
<tr>
<td>2014</td>
<td>15</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3 - Virtual Computing Infrastructure
### VIRTUAL MACHINES
- Private workstations (Windows 7)
- Application Servers (Linux)
- Labs / Classroom (Linux)

### SERVICES & RESOURCES
- Software development playground
- Isolated environment used for network security experiments
- Private workstations
- Centralized user management
- Redundant file storage
- Convenient access

### NETWORK CONTROL
- Firewall
- Managed L3 Switch
- VPN Server

### VENDORS
- Cisco
- Hewlett Packard
- Netgear
- QNAP
- Ruckus

### NETWORKS
- Core
- Faculty
- Public
- Students

### VIRTUAL MACHINES
- Application Servers
- Document Management
- Wiki

### Classroom Resources
- CSCI 3200
- CSCI 5120
- CSCI 6220
- CWH 214 (LAB)

### Private Workstations
- Faculty
- Students
Appendix 4 - Sample Flyers
Modern robots need to sense the world to obtain knowledge on their position, orientation, obstacles, environment, etc. They use a huge variety of sensors including but not limited to:

- accelerometers, magnetometers, gyroscopes to determine the acceleration, speed, position, orientation in 3D space
- infrared and ultrasonic sensors to “see” obstacles and other objects
- cameras and microphones to recognize commands and other conditions

In this presentation you will learn principles of using such sensors and will get some hands on experience on manipulating behavior of two educational robots: IntelliBrain and Bioloid.

Simon Baev holds a PhD degree in Electrical Engineering from the University of Alabama in Huntsville (2008); MS in Computer Engineering from the University of Alabama in Huntsville (2008); MS in Electrical Engineering from the Southern Ural State University, Russia (2000); and a BS in Electrical Engineering from the Southern Ural State University, Russia (1998). Since August, 2008, he has been with the School of Computing and Mathematics in Georgia Southwestern State University, where his present position is an Assistant Professor. His research interests include but are not limited to sliding mode control theory and its applications, robotics control, and virtual computing.

The presentation is sponsored by AT&T
Computer Science for High Schools Series

“Learning Programming from Scratch”

Presented by
Karen S. Cook

10:00 a.m.
Thursday, October 14, 2010
Room 100 Education Center
Georgia Southwestern State University

Scratch is a programming language that makes it easy to create your own interactive stories, animations, games, music, and art -- and share your creations on the web. As young people create and share Scratch projects, they learn important mathematical and computational ideas, while also learning to think creatively, reason systematically, and work collaboratively.

Developed at Massachusetts Institute of Technology (MIT), Scratch programming language is very visual in nature. The basic logic statements are shown and the programmer can then drag them into place and type in new variables. Scratch allows people of any experience background and age to experiment with the concepts of a fully versatile computer programming language.

In this presentation you will see how easy it is to write a program using Scratch without having to have any prior programming training or experience.

Karen Cook is a Senior Lecturer at Georgia Southwestern State University. She holds a M.S. degree in Computer Science and a B.S. degree in Computer Information Science from Georgia Southwestern State University. She has taught programming and computer classes for GSW since January 2001. She is also the faculty advisor for Upsilon Pi Epsilon (UPE) which is the only international honor society in the computing sciences. Her interests include programming, desktop publishing, and digital photography.

The presentation is sponsored by AT&T
<table>
<thead>
<tr>
<th>Description of Budget Requests</th>
<th>New One-Time or New Continuing</th>
<th>Dollar Amount Categories</th>
<th>Matching Funds</th>
<th>Budget Process Guiding Questions</th>
</tr>
</thead>
</table>
| Stipend for the School Servers Administrator, GSW Goal #2: Action Objective 2. Guiding Questions: #1 & #2 | C | $10,000 | | If question(s) related, please provide a brief statement. Funding will: 
1. increase retention rates, graduation rates and/or credit hours generated?
2. enhance existing program? How specifically?
3. creation of new academic programs/significant student demand?
4. enrich campus intellectual life? How specifically?
5. contribute to GSW meeting one of the goals of the Strategic Plan? Which goal? |
| Seagate ST33000650NS 3TB 5x400= $2000 GSW Goal #1: Action Objective 3, Guiding Questions: #1 & #2 | T | $2,000 | | Requested funding will enhance the existing programs. The School created and maintains a sophisticated computer infrastructure, which contains a Virtual Private Network (VPN) and Virtual Servers for online and on-campus students. This infrastructure is vital for all computer classes and needs to be updated on the regular base. |
| HP 627812-B21 16GB PC3L-10600R 10x500=$5000 GSW Goal #1: Action Objective 3, Guiding Questions: #1 & #2 | T | $5,000 | | Requested funding will enhance the existing CS and IT programs. The request of improvement of the computer infrastructure is coming from the students exit interviews |
| QNAP LAN-1G2T-U Dual-port Gigabit Network Expansion Card 1x300=$300 GSW Goal #1: Action Objective 3 | T | $300 | | Requested funding will enhance the existing CS and IT programs. The request of improvement of the computer infrastructure is coming from the students exit interviews |
| Intel E10G42BFSR Dual-port 10 Gigabit network adapter 1x800=$800 GSW Goal #1: Action Objective 3 | T | $800 | | Requested funding will enhance the existing CS and IT programs. The request of improvement of the computer infrastructure is coming from the students exit interviews |

GSW DESCRIPTION OF BUDGET REQUESTS 2013-2014 FY

PHASE 1

Budget Process, GCSU; http://168.16.211.51:8080/revize/gcsu/planning/budgetplanning/index.htm
<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco WS-C3750X-48T-S CATALYST 3750X-48T-S LAYER 3 SWITCH - 48 PORT</td>
<td>1x4800=$4800</td>
<td>GSW Goal #1: Action Objective 3</td>
<td>Requested funding will enhance the existing CS and IT programs. The request of improvement of the computer infrastructure is coming from the students exit interviews.</td>
</tr>
<tr>
<td>Cisco C3KX-NM-10G CATALYST 3K X 10G NETWORK MODULE FOR 3560X AND 3750X SERIES SWITCHCES 1x1100=$1100</td>
<td>T</td>
<td>$1,100</td>
<td>GSW Goal #1: Action Objective 3 Guiding Questions: #1 &amp; #2</td>
</tr>
<tr>
<td>Cisco SFP-10G-LR SFP+ TRANSCEIVER MODULE - LC/PC SINGLE MODE - PLUG-IN MODULE 1x1550=$1550, GSW</td>
<td>T</td>
<td>$1,550</td>
<td>GSW Goal #2: Action Objective 1 Guiding Questions: #1 &amp; #2</td>
</tr>
<tr>
<td>Annual Subscription: VMware Academic Program, GSW Goal #2: Action Objective 1 Guiding Questions: #1 &amp; #2</td>
<td>C</td>
<td>$250</td>
<td>Requested funding will enhance the existing CS/IT programs by providing the industrial strength software to the students.</td>
</tr>
<tr>
<td>Annual Subscription: Microsoft Academic Alliance, GSW Goal #2: Action Objective 1 Guiding Questions: #1 &amp; #2</td>
<td>C</td>
<td>$270</td>
<td>Requested funding will enhance the existing CS/IT programs by providing the industrial strength software to the students.</td>
</tr>
</tbody>
</table>
Appendix 6 – Annual Assessment Summaries
### Annual Summary Cycle - Year 1 (2011-2012)

**Program: BS in Computer Science**

<table>
<thead>
<tr>
<th>Program Learning Outcomes</th>
<th>Outcome Measures</th>
<th>Number of Students Assessed</th>
<th>% Did Not Meet</th>
<th>% Met</th>
<th>% Exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To demonstrate a broad range of knowledge in areas of computer science, including: Programming Fundamentals, Social &amp; Professional Issues, Algorithms, Computer Architecture &amp; Organization, Operating Systems, Computational Sc. &amp; Numerical Methods, Discrete Structures</td>
<td>Portfolio of student projects and programs</td>
<td>311</td>
<td>19.62 %</td>
<td>54.76 %</td>
<td>25.57 %</td>
</tr>
<tr>
<td>2. To apply knowledge of computing and mathematics, analyze problems, identify and define the computing requirements appropriate to its solution.</td>
<td>Portfolio of student projects and programs</td>
<td>250</td>
<td>19.59 %</td>
<td>56.07 %</td>
<td>24.34 %</td>
</tr>
</tbody>
</table>

**Comments:** During the academic year 2011-2012 two program learning outcomes were assessed as per the proposed three-year cycle. Courses taught in Fall 2011 and Spring 2012 were sampled and for each class both the PLOs were assessed. Assignments, projects, quizzes and tests from each class were used to determine percentage of student who did not perform well, percentage of students who did well, and percentage of students who excelled the expectations with respect to assessing the PLOs.

Totally 311 student contributed in assessing PLO 1. 55.00 % of the students exhibited the overall skill set in the computer science areas like programming fundamentals, responsibility towards social and ethical issues, designing algorithms, data structures, and computational methods. 26.00 % of the students demonstrated excellence while 20.00 % did not show convincing evidence of having the skills. These results when compared with the previous year assessment data reveal that the percentage of students who did not meet the expectations slightly increased. This is could be due to poor performance in any one class.

As noticed above, the PLO 2 was assessed by 250 students from various courses offered in Fall 2011 and Spring 2012. 56.00 % of the students exhibited the overall skill to do requirement determination while 24 % reflects the fact that the students have skills to design a business solution as well. 20.00 % of the students did not demonstrate their understanding on creating a business solution.

Student/Faculty Focus Group is an example of indirect measures which were used to assess these PLOs. During the meeting on April 23, 2011, four senior students shared with two faculty their feeling about skills related to PLO1 and PLO2, which they acquired. In general, the feedback was positive; students listed classes and technology which helped them to improve these skills.
Action Plan Form: 2011-2012

Georgia Southwestern State University

<table>
<thead>
<tr>
<th>Program: BS Computer Science</th>
<th>Contact: Arvind Shah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Outcome: 2. An ability to apply knowledge of computing and mathematics, analyze problems, identify and define the computing requirements appropriate to its solution.</td>
<td></td>
</tr>
<tr>
<td>Proposed Action: Pay a special attention in computer courses to examples of application of mathematics. Develop in the Computer Security course examples of algorithms for performing encryption or decryption based on a material from the Discrete Structures course.</td>
<td></td>
</tr>
<tr>
<td>Rationale for Proposed Action: Students learn mathematics but do not know how to put theory into practice.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target Timeline</th>
<th>Expected Results</th>
<th>Individual Responsible</th>
<th>Resources Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2012</td>
<td>Students will be able to apply mathematics in practical applications</td>
<td>Arvind Shah Boris Peltsverger</td>
<td>GeorgiaView</td>
</tr>
</tbody>
</table>

Additional Comments:

In response to the proposed actions for academic year 2011-2012, the following actions were taken in Fall 2011, Spring, and Summer 2012.

In Fall 2011 these actions were implemented in CSCI 3500 - Data Structures & Algorithms and CSCI 4500 - Design and Analysis of Algorithms classes.

In Spring 2012 these actions were implemented in CSCI 2500 – Discrete Structures and CSCI 3300 – Concepts of Programming Languages classes.

In Summer 2012 these actions were implemented in CSCI 4820 – Principles of Computer Graphics and CIS 4400 – Information Storage and Retrieval classes.

CSCI 3500 - Data Structures & Algorithms. This course covers the basic topics of efficiency of algorithms and different data structures such as stacks, queues, linked lists, and heaps. Students apply mathematics when they analyze efficiency of different sorting and searching algorithms for different data types (stacks, queues, linked lists, trees, and heaps). In the first assignment student apply functional analysis and 2D geometry to determine which of the three given algorithms demonstrate better performance and what is the minimum number of test cases in which the best algorithm has the best run time. This assignment helped students to
practically apply their math skills in computer science. The follow-up test demonstrated that 75% met requirements and 14% of them exceeded the expectations.

CSCI 4500 - Design and Analysis of Algorithms. This course provides techniques for designing and analysing algorithms. Students apply the fundamentals of mathematics (set theory, proof techniques, calculus, asymptotic notation, etc.) when they design and analyze different types of algorithms (greedy, divide-and-conquer, dynamic programming, etc.). Students usually have difficulties with some proof techniques, such as proof by contradiction for Greedy algorithm. Additional hand-on assignments were considered in class that helped more than 50% of students efficiently apply logical thinking and proof techniques when they working with algorithms or writing a program.

CSCI 2500 – Discrete Structures. The course specifically focuses on the mathematical techniques that are frequently used in computer science such as mathematical logic, proof methods, counting techniques, combinatorics, and recurrence relation. Students learn mathematics and apply their knowledge either by writing algorithms or in programming.

CSCI 3300 – Concepts of Programming Languages classes. This course introduces the basic paradigms and techniques of imperative, functional, logic, object-oriented, and concurrent programming languages. Students apply mathematical logic and other discrete structures topics when they describe syntax and semantics of different programming languages. It were prepare several exercises when students have to prove that the given grammar is ambiguous and explain why this is unsatisfactory for grammar and demonstrate by giving an example.

CSCI 4820 – Principles of Computer Graphics. This course contains the basic mathematics that students apply for the practical computer graphics design: trigonometry, polar coordinates, 2D and 3D coordinate systems, parametric representations, points and vectors.

CIS 4400 – Information Storage and Retrieval. Students use Boolean, vector, probabilistic, and fuzzy set models to measure similarity for documents, terms, and queries. They also apply different searching and clustering algorithms for the practical assignments. All mathematical assignments in this class were oriented on the practical implementation in computer science.
**Annual Summary Cycle - Year 2 (2012-2013)**

**Program: BS in Computer Science**

<table>
<thead>
<tr>
<th>Program Leaning Outcomes</th>
<th>Outcome Measures</th>
<th>Number of Students Assessed</th>
<th>% Did Not Meet</th>
<th>% Met</th>
<th>% Exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Demonstrate an ability to function effectively on teams to accomplish an academic goal.</td>
<td>Portfolio of student projects and programs</td>
<td>120</td>
<td>20.90 %</td>
<td>68.73 %</td>
<td>10.38 %</td>
</tr>
<tr>
<td>4. Demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities</td>
<td>Portfolio of student projects and programs</td>
<td>78</td>
<td>17.77 %</td>
<td>44.85 %</td>
<td>37.38 %</td>
</tr>
</tbody>
</table>

**Comments:** During the academic year 2012-2013 two program learning outcomes were assessed as per the proposed three-year cycle. Courses taught in Fall 2012 and Spring 2013 were sampled and for each class both the PLOs were assessed. Assignments, projects, quizzes and tests from each class were used to determine percentage of student who did not perform well, percentage of students who did well, and percentage of students who excelled the expectations with respect to assessing the PLOs.

Totally 120 students contributed in assessing PLO 3. 68.73 % of the students exhibited the skill set in team working in the computer science areas like programming fundamentals, responsibility towards designing algorithms, data structures, and computational methods. 10.38 % of the students demonstrated excellence while 20.90 % did not show convincing evidence of working effectively in teams. Although the PLOs assessed in first cycle are different, when compared with the previous year assessment data reveal that the percentage of students who did not meet the expectations remains unchanged while the % who met increased by 14 % and by the same number the % exceeded decreased. This means that at large student do better in group setting.

Totally 78 students contributed in assessing PLO 4. 44.85 % of the students exhibited the understanding of social and ethical issues, in the computer science areas like programming fundamentals, designing algorithms, data structures, and computational methods. 37.38 % of the students demonstrated excellence while 11.77 % did not show convincing evidence of having the skills. Although the PLOs assessed in first cycle are different, these results when compared with the previous year assessment data reveal that the percentage of students who did not meet the expectations decreased by 2 % while the % who met decreased by 14 % and by the same number the % exceeded increased. This means that at large student do better in working in teams and understand the legal, ethical, and security related issues. The two particular classes, CSCI 2920 Ethics in Computer Profession and CIS 4200 Computer Security, contributed to the PLO4.
Action Plan Form: 2012-2013

Georgia Southwestern State University

| Program: | BS Computer Science | Contact: | Arvind Shah |
| Learning Outcome: | 4. An understanding of professional, ethical, legal, security and social issues and responsibilities |
| Proposed Action: | Conduct a survey in two-three selected classes, which address professional, ethical, legal, security and social issues and responsibilities |

<table>
<thead>
<tr>
<th>Target Timeline</th>
<th>Expected Results</th>
<th>Individual Responsible</th>
<th>Resources Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2013</td>
<td>Based on the survey results, the content of appropriate classes will be updated</td>
<td>Arvind Shah Boris Peltsverger</td>
<td>GeorgiaView</td>
</tr>
</tbody>
</table>

Additional Comments:

Following classes were identified for Fall 2012 and Spring 2013 in which topics on security, ethical considerations, legal, and professional matters are covered. The instructor collected information on one or more of these topics during the semester as the situation came up. The responses of the students are narrated by the instructors as mentioned below.

CSCI 4400 Intro to DBMS: Students were asked question in the class: “How do you assure the security of data residing in databases?” Most students responded that the database is always secured as no one has direct access to the database. Another response was that the security is implemented database level requiring user authentication by way of username/password.

CIS 3200 Network Management: Students were asked question in the class: “How do you secure the organizational asset over network? Students responded several measures of security can be taken – network access by user login, reviewing security log, implementing group policies, regular back-ups.

CIS 4200 Computer Security: The instructor included an essay-type question on the final exam related to legal/ethical issues in the field of computer security. All students had shown acceptable understanding of the issues related to computer security and ethical use of computers.

CSCI 2920 Ethics in Computer Profession: The instructor asked the question to all the students are required to explain: “Why they believe certain situations are ethical or not ethical?” The students were able to explain the laws that govern those situations.
BS Computer Science  
Annual Summary Cycle - Year 3 (2013-2014)

<table>
<thead>
<tr>
<th>Program Learning Outcomes</th>
<th>Outcome Measures</th>
<th>Number of Students Assessed</th>
<th>% Did Not Meet</th>
<th>% Met</th>
<th>% Exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Demonstrate an ability to communicate effectively orally and in writing with a range of audiences.</td>
<td>Portfolio of student projects and programs</td>
<td>133</td>
<td>18.11 %</td>
<td>51.20 %</td>
<td>30.69 %</td>
</tr>
<tr>
<td>6. Be prepared for entry-level employment or master degree.</td>
<td>Portfolio of student projects and programs</td>
<td>228</td>
<td>26.35 %</td>
<td>48.38 %</td>
<td>25.21 %</td>
</tr>
</tbody>
</table>

**Comments:** During the academic year 2013-2014, two program learning outcomes were assessed as per the proposed three-year cycle. Courses taught in Fall 2013 and Spring 2014 were sampled and for each sampled class both PLOs were assessed. Assignments, projects, quizzes and tests from each class were used to determine the percentage of student who did not perform well, the percentage of students who did well, and the percentage of students who excelled the expectations with respect to assessing the PLOs.

Totally 133 students contributed in assessing PLO 5. 51.20 % of the students exhibited the ability to effectively communicate orally and in writing. The assessment was done based on presentations in class projects, writing project reports, group discussions on the programming fundamentals, designing algorithms, capstone projects, computational methods, and other areas of computer science. 30.69 % of the students demonstrated excellence, while 18.11 % did not show convincing evidence. The examination of this data indicates that 82% (51.20 + 30.69) of the students demonstrated that they can communicate in technical areas while 18% need improvement in communication skills. Examination of courses included in the assessment reveals that students need to improve in Programming, Capstone Projects, and Concepts Of Programming Languages.

Totally 228 students contributed in assessing PLO 6. 48.39 % of the students exhibited the skill that they are ready to enter the work force or continue in the graduate program in the computer science or related areas. 25.23 % of students demonstrated excellence, while 26.03 % may find it difficult to find good jobs. The examination of this data indicates that 73.59 % (48.39 + 25.21) of students demonstrated that they can enter into the work force or may enroll in graduate schools while 26.35 % may need to improve their skills. Looking at the raw data it seems students did poor in several classes. It is necessary to discuss with faculty a plan to improve students’ performance in these classes.

As we notice that the percentages in each category for PLO 5 and PLO 6 differ, it is concluded that students showed they acquired skills from one or more classes in Computer Science, and accomplished the work by oral communication or in writing or both. For both PLOs, approximately 74.82 % of the students demonstrated that they have the communication skills and can be successful in the job market or may be accepted to graduate schools. The classes like Capstone Project, Database Design, Ethics in Computer Profession, and Computer Security, contributed to the assessment of communication skills.

This is the first cycle of the program learning outcomes assessment and hence cannot be compared to show improvement over previous years. It will be done during the second cycle of assessment.
Action Plan Form: 2013-2014

Georgia Southwestern State University

<table>
<thead>
<tr>
<th>Program Learning Outcome (PLO):</th>
<th>5. Demonstrate an ability to communicate effectively orally and in writing with a range of audiences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Action:</td>
<td>Conduct evaluations of oral and writing skills in appropriate classes and extracurricular activities. Develop a survey, which provides questions for self-evaluation of the ability to communicate effectively orally and in writing with a range of audiences.</td>
</tr>
<tr>
<td>Rationale for Proposed Action:</td>
<td>The proposed actions will help to evaluate skills declared in the learning outcome 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target Timeline</th>
<th>Expected Results</th>
<th>Individual Responsible</th>
<th>Resources Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>The number of students, who meet PLO 5 requirements, will increase.</td>
<td>Arvind Shah Boris Peltsverger</td>
<td>GeorgiaView</td>
</tr>
</tbody>
</table>

Additional Comments
In a response to the proposed action, students were surveyed for the development of communication skills. The instructors also provided information on how their courses contributed to the proposed action.

Courses which contributed to the proposed action
The following courses were identified which contributed to the development of communication skills - (1) CSCI 4400 – Intro to Database Fall 2013), (2) CSCI 4940 – Capstone Projects (Spring 2014), and CSCI 2920 – Ethics in Computer Profession (fall 2014).

Summary of the students' responses
The responses received from students clearly states that the courses listed above required discussions among the group members, writing technical documents that explaining the completion of tasks, and classroom presentations. In some courses, they were required to work on projects in groups which required both oral (class presentation) and written communication (technical documentation, user’s guide). Some students had an opportunity to tutor others and thereby developed the communication skills.

Summary of the instructors' responses
Courses that contributed to the proposed action demonstrated the students’ ability to communicate with a varied range of audiences, to write documentation and user’s guide, and to make a class presentation. Some classes required discussion groups which was an important component to emphasize the ability to communicate among peers. This also helped students learn from each other and develop better communication skills.
**Action Plan Form: 2013-2014**

**Georgia Southwestern State University**

<table>
<thead>
<tr>
<th>Program: BS Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact: Arvind Shah</td>
</tr>
</tbody>
</table>

**Program Learning Outcome (PLO):** 6. Be prepared for entry-level employment or master degree.

**Proposed Action:** Organize a job showcase and meetings with potential employers. Continue to offer advanced projects to CS majors and conduct professional seminars. Develop a survey, which provides questions for self-evaluation skills, which students gained in aforementioned events.

**Rationale for Proposed Action:** The proposed actions will help to improve and evaluate skills, required for entry-level employment, or enrollment to a master degree program.

<table>
<thead>
<tr>
<th>Target Timeline</th>
<th>Expected Results</th>
<th>Individual Responsible</th>
<th>Resources Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>Students’ employability skills and ability to develop advanced projects will improve.</td>
<td>Arvind Shah Boris Peltsverger</td>
<td>GeorgiaView</td>
</tr>
</tbody>
</table>

**Additional Comments**

In response to the proposed actions for academic year 2013-2014, students were surveyed for their readiness for employment and/or for graduate studies. Also, several courses were identified that contributed to prepare students for employment and/or for graduate studies.

**Courses which contributed to the proposed actions**

The following courses were identified that prepared students for employment and graduate study: (1) CSCI 4400 Intro to Database (Fall 2013), (2) CSCI 4940 Capstone Projects (Spring 2014), 4300 Software Engineering (Spring 2014), CSCI 4310 Object Oriented Programming (Java) (Fall 2013).

**Summary of the Student’s responses**

The responses received from students clearly states that several courses provided knowledge that prepared them for employment. Some courses required students to work on a projects and problem solving, which gave them a challenging opportunity to learn the latest computer technologies. Students stated that the program prepared them to pursue graduate studies.

**Summary of the instructors’ responses**

Courses that contributed to the proposed action demonstrated the ability to work on group projects, which required complex problem solving, and prepared them with knowledge base for employment. Some classes required presentations, giving them the skills necessary for job interviews. Students are exposed to commonly used practices in software development and groupwork. In contrast, other projects (mainly oriented to web programming) not only allow students to work through all steps of software development starting from sketching basic ideas, to a working prototype, but also allow them to contribute to their professional portfolio, which can later be shared with potential employers.

In April 2014 a Job Showcase was held in the Department of Computer Science. This event gave students an opportunity to meet employers and to discuss with them job related matters.
Appendix 7 – Multi-year schedule
## MULTI-YEAR SCHEDULE OF UNDERGRADUATE COURSE OFFERINGS

### Even Year as Determined by Fall Semester

<table>
<thead>
<tr>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1301: Intro. to Programming I</td>
<td>CSCI 1301: Intro. to Programming I</td>
<td>CSCI 3100: Intro. to Comp. Org.</td>
</tr>
<tr>
<td>CSCI 3500: Data Struc. &amp; Algo.</td>
<td>CSCI 3300: Conc. of Progm. Lang.</td>
<td>CIS 1000: Computer Applications</td>
</tr>
<tr>
<td>CSCI 4500: Des.&amp;Anal. Algorithms</td>
<td>CSCI 4830: Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>CSCI 4900: Spec. Prob. in CS</td>
<td>CSCI 4930: Internship</td>
<td></td>
</tr>
<tr>
<td>CSCI 4910: Jr./Sr. Seminar</td>
<td>CSCI 4940: Capstone Project</td>
<td></td>
</tr>
<tr>
<td>CSCI 4930: Internship</td>
<td>CSCI 1000: Computer Applications</td>
<td></td>
</tr>
<tr>
<td>CIS 4900: Spec. Prob. in CIS</td>
<td>CSCI 4900: Spec. Probl. in CIS</td>
<td></td>
</tr>
</tbody>
</table>

### Odd Year as Determined by Fall Semester

<table>
<thead>
<tr>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1301: Intro. to Programming I</td>
<td>CSCI 1301: Intro. to Programming I</td>
<td>CSCI 3100: Intro. to Comp. Org.</td>
</tr>
<tr>
<td>CSCI 3500: Dat. Struc. &amp; Algo.</td>
<td>CSCI 3300: Conc. of Progm. Lang.</td>
<td>CIS 1000: Computer Applications</td>
</tr>
<tr>
<td>CSCI 4900: Spec. Prob. in CS</td>
<td>CSCI 4900: Spec. Probl. in CIS</td>
<td></td>
</tr>
<tr>
<td>CSCI 4910: Jr./Sr. Seminar</td>
<td>CSCI 4930: Internship</td>
<td></td>
</tr>
<tr>
<td>CSCI 4930: Internship</td>
<td>CSCI 4940: Capstone Project</td>
<td></td>
</tr>
<tr>
<td>CIS 1000: Computer Applications</td>
<td>CSCI 1000: Computer Applications</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 8 - Plan Of Study
<table>
<thead>
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Georgia Southwestern State University  
School of Computing & Mathematics  

**B. S. in Computer Science (4 - years)**  

**Plan Of Study**  

(Odd year as determined by Fall semester)  

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