

**Palm Beach State College**  
**Course Syllabus – Hybrid/Web Content**

**General Class and Course Information**

Course number: BSC 2421 Class Reference Number: 152885 Term: Spring 2012

Course title: Introduction to Biotechnology. Credit/Contact hours: 3

Course Description: This hybrid course will provide a comprehensive approach to the concepts of biotechnology both in a historical and current context. It will take the students through the basic principles of genomics and proteomics, with DNA and protein structure and function. It will emphasize in the molecular biology aspects of genetic engineering and recombinant DNA technology. Examples of microbial, plant or agricultural, animal, forensic, environmental, aquatic, and medical biotechnology, will be discussed and analyzed. Regulatory, ethical, legal, and social concerns and implications of biotechnology will also be addressed. Finally, introductory remarks about nano-biotechnology and bioinformatics will be provided.

Course Learning Outcomes: As a result of taking this course, the student will be able to  
As a result of taking this course, the student will be able to:

Recognize and differentiate the main concepts of traditional or historical biotechnology and contrast it with the modern molecular biotechnology, and recognize the critical role of the scientific method in this context.

Describe the provide examples of current applications and advances in several areas of biotechnology.

Explain and discuss the basic structure and function of DNA, genes , and genomes, and the process of replication, transcription, and translation, as well as the principles of recombinant DNA technology and genetic engineering.

Contrast the concept of proteomics versus the one of genomics, and discuss the mechanism of protein synthesis, including the posttranslational modifications, and briefly, the concepts of protein engineering, production, and processing.

Review the use of microorganisms in biotechnology, and give examples of different applications and strategies in this context.

Identify and list different practical field applications of plant biotechnology from the point of view of agricultural, nutritional, and pharmaceutical approaches.

Synthesize the main concepts and applications of animal biotechnology, including the use of transgenic animals, clinical trials in animal models, and animal cloning.

Explain and discuss sampling, analysis and interpretation of DNA fingerprinting and its implications as court evidence, genetic profiling, and determination of familial relationships, and include examples of different applications of non-human DNA analysis.

Define the concept of bioremediation and its applications pollution control, recycling in soil and water, and its relation with bioenergetics.

Cite examples of aquaculture and fish farming, and discuss the concept of genetic improving of seafood quality and safety, as well as report some medical and environmental uses of aquatic biotechnology.

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Discuss the applications of medical biotechnology in the areas of diagnostics, production of new medicines, vaccines, and antibodies.

Explain the concepts of gene therapy, regenerative medicine, pharmacogenomics, cell and tissue engineering.

Debate about stem cell research and applications, and give a broad concept of the human genome project versus the human proteome project.

Identify the main regulatory agencies for biotechnological purposes, as well as the basic criteria for their guidelines, and identify the steps of the permits, notification and approval process for new products, as well as the criteria for labeling, and the main concepts of patents, and trademarks.

Debate the main ethical concerns about some biotechnological procedures like genetic testing, genetically modified animals and crops, stem cell research, cloning genes and entire organisms, and also about the implications on bioterrorism issues.

Interpret the main concept of nanotechnology and nanostructures, and differentiate between nanotechnology and micro-electromechanical systems and nanobots. Besides, the student will be able to provide examples of nanotechnological applications particularly related to biomedical applications.

Recognize the basic principles of bioinformatics, the use of DNA data bases, Gen Bank networks, search engines, micro-array analysis, topology, and artificial intelligence in the context of bioinformatics.

Full Course Outline: Click on the following link: Cut and paste in web link to course outline available at <http://www.palmbeachstate.edu/x4247.xml>

#### Class Schedule

This is a hybrid course, which means that some activities will be conducted through the blackboard on line system, and other ones will be produced in regular weekly meetings of one hour and fifteen minutes each, on Mondays, at 2:00 pm. in Room SC 211 of the new Bioscience complex building of the Palm Beach Gardens campus, Palm Beach State College. During the regular meetings we will have discussions, questions and answers, 4 official exams, and one specific presentation from each one of the participants in front of the entire class, using audiovisual aids, like power point presentations etc.

The on line component which could be accessed through the on line blackboard system in the section of the left menu of the course content, called Learning Modules. The learning Modules are organized in the form of 12 units, each one with two specific lectures, which includes 24 short written research assignments, to be submitted on line through the blackboard system at specific deadlines, which will appear in this syllabus and in the Learning Modules of the on line course content. Also, 24 discussions which should be submitted as the previous on line assignments. Two other type of assignments will be required, one on bioinformatics defined in the on line blackboard system, and the written presentation of a professional “resume” from each one of the participants.

The course is divided in 12 units, each one with two lectures on specific topics described later in this syllabus, and in the Learning Modules of the blackboard system.

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Textbook(s) Information:

Required:

Thieman W.J. and Palladino M.A., 2009, Introduction to Biotechnology, 2nd edition, San Francisco CA, Pearson/Benjamin Cummings. ISBN: 978-0-321-49145-9

Daugherty E. 2007. Biotechnology. Science for the New Millenium. Paradigm Publishing Inc. Saint Paul MN. ISBN: 9780763842840.

Recommended:

Clark D.P, and Pazdernik N.J. 2012. Biotechnology. Elsevier, Academic Cell, (Academic Press), Maryland Heights, MO 63043, USA. ISBN: 978-0-12-385063-8.

USDHHS, CDC, and NIH, 1999, Biosafety in the Microbiological and Biomedical Laboratories, 4th edition, Washington D.C. US Government Printing Office. HHS Publication No. (CDC) 93-8395.

Clark D.P. and Pazdernik N.J. 2009. Biotechnology. Applying the Genetic Revolution. Elsevier Academic Press. Burlington, MA. ISBN: 978-0-12-175552-2.

Glazer A.N. and Nikaido H. 2007. Microbial Biotechnology. Fundamentals of Applied Microbiology. Cambridge University Press. Cambridge, NY. Second Edition. ISBN: 978-0-521-84210-5.

Bergeron B. 2003, Bioinformatics Computing. 1st edition, Upper Saddle River NJ, Prentice Hall. ISBN: 0-13-100825-0.

Krane D.E., and Rayner M.L., 2002, Fundamental Concepts of Bioinformatics, 1st edition, San Francisco, CA, Benjamin Cummings. ISBN: 0805346333.

Mount D.W. 2001, Bioinformatics, 1st edition, San Francisco, CA, Benjamin Cummings. ISBN: 0879696087.

Baxwvanis A.D., and Ouellette F., 2004, Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins. 3th edition, New York, NY. ISBN: 0471478784.

Wilson M., Kannagara K., Smith G., and Simmons M., 2002, Nanotechnology: Basic Science and Emerging Technologies, 1st edition, Boca Raton, FL., Chapman Hall/CRC. ISBN: 1584883391.

Lakhtakia A. 2004, The Handbook of Nanotechnology, Nanometer Studies: Theory, Modeling and Simulation, 1st edition, Bellinham, WA. The International Society of Optical Engineering, ISBN: 081945186X.

Ratner M., and Ratner Daniel, 2003, Nanotechnology, 1st edition, Upper Saddle River NJ, Prentice Hall. ISBN: 0-13-101400-5.

Poole C.P., and Owens F.J., 2003, Introduction to Nanotechnology, New York, NY, Willey Interscience. ISBN: 0471079359.

Timp G., 1999, Nanotechnology, 1st edition, Mellville, Long Island, NY, A.I.P. Press. ISBN: 0387983341.

Thiel T., Bissen S.T., and Lyons E. M., 2002, Biotechnology: DNA to Protein- a Laboratory Project in Molecular Biology, 1st edition, Boston MA, The McGraw Hill Company. ISBN: 0-0724-1664-5.

Bourgaize D., and Jewell T.R., and Buiser R.G., 2000, Biotechnology: Demystifying the Concepts. 1st edition, San Francisco CA, Benjamin Cummings. ISBN: 0-8053-4602-3.

Rittman B. E., and McCarty P.L., 2001, Environmental Biotechnology, 1st edition, Boston MA, the McGraw Hill Company. ISBN: 0-0723-4553-5

Stephenson F.H., 2003, Calculations for Molecular Biology and Biotechnology: A Guide to Mathematics in the Laboratory. 1st edition, San Diego CA, Academic Press. ISBN: 0-12-665751-3.

Alcamo I.E. 2001, DNA Technology the awesome skill, 2nd edition, Academic Press, San Diego CA. ISBN: 0-12-048920-1.

Grace I.S, 1997, Biotechnology Unzipped: Promises and Realities, 1st edition, National Academy Press, Washington DC., ISBN: 0309057579.

Clark D.P., and Russell L.D., 2000, Molecular Biology Made Simple and Fun. 2nd edition, Cache River Press, Vienna IL. ISBN: 1889899046.

Ream W., Field K.G., and Field K.G., 1999, Molecular Biology Techniques: An intensive Laboratory Course, 1st edition, Academic Press, San Diego CA. ISBN: 0-12-583990-1.

Borem A., Santos F.R., and Bowen D.E., 2003, Understanding Biotechnology, 1st edition, Prentice Hall, Upper Saddle River, NJ. ISBN: 1555812244.

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Barnum S.R., 2004, *Biotechnology: An Introduction*, 2nd edition, Belmont CA, Brooks Cole- Thompson Publishing Inc. ISBN: 0534492967. Click here and provide text title(s), edition, author, publisher and ISBN.

Web Content Information: Course Core Outline

Unit # 1: Lecture 1. History and General Concepts in Biotechnology.

Historical background. From selective breeding of livestock and crops, through fermentation developments, up to Recombinant DNA Technology and Genetic Engineering. Biotechnology and the scientific method. Observational skills. Objectivity. Experimental evidence and statistical significance.

Lecture 2. Types of Biotechnology: Microbial. Animal. Agricultural. Aquatic. Environmental. Medical. Forensic. Regulatory.

Unit # 2: Lecture 3. Public perception of biotechnology. Public awareness of genetic engineering.

Regulatory requirements and safety of genetically engineered products. Labeling. Policy making. Areas of significant public concern. Introduction to Ethics and Biotechnology. Bioethics. Biotechnology and Nature. Genetically modified (GM) crops. Genetic modification of animals. Need stem cell info here.

Lecture 4. Introduction to Industrial Biotechnology. Scale –Up of process. Possible hazards from industrial production and use of pathogens. Risk assessment.

Unit # 3: Lecture 5. Genomics, Genes & Genomes. Discovery of DNA. Historical experiments. Cell structure. Prokaryotic and eukaryotic Genomics. DNA. Genes. Genomes and chromosomes. DNA structure. Chromosome structure. FISH.

Lecture 6. DNA Replication. DNA expression. Transcription. Survey of DNA replication. Transcription. Messenger RNA. Replication, Introns. Exons. RNA splicing. Gene expression. Mutations. Types of mutations. Operons and regulation of gene expression.

Unit # 4: Lecture 7. Recombinant DNA technology. Genetic engineering. Recombinant DNA technology. Restriction enzymes or endonucleases. Cleavage of the DNA. Plasmids. DNA vectors. Plasmid vectors. Bacteriophage vectors. Lambda bacteriophage and its importance in genetic engineering. Cosmid vectors. Expression vectors. E. coli in recombinant DNA technology. Bacterial artificial chromosomes. Yeast artificial chromosomes. Ti vectors.

Lecture 8. DNA Cloning. Cleavage of DNA. The human genome. Antibiotic selection. Identification of clones. DNA libraries. Genomic versus cDNA libraries. Library screening. Probes. Hybridization. DNA amplification. Polymerized Chain Reaction (PCR). Reverse transcriptase PCR. (RT-PCR). Real time PCR. In situ PCR.

Unit # 5: Lecture 9. Some of the main biotechnology techniques. Gel electrophoresis and mapping gene structure with restriction enzymes. Restriction mapping. Agarose gel electrophoresis. Polyacrylamide gel electrophoresis (PAGE). Automated DNA Sequencing.

Lecture 10. Proteomics. Translation. Protein synthesis and purification. Posttranslational modifications and glycosylation. Protein engineering. Protein production, processing, and expression.

Unit # 6: Lecture 11. Microorganisms as tools for biotechnology. Microbial biotechnology. Structure of Microorganisms. Microbes as biotech tools. Microbial products. Vaccines. Microbial genomes and their uses. Microbial

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diagnostics. Microbial Bioterrorism. Microbial Bioweapons.

Lecture 12. Bacterial transformation. Electroporation. Microbial proteins as reporters. Reporter genes. Bioluminescence. Luciferase. B-galactosidase. Therapeutic proteins produced in microorganisms by genetic engineering. Antibiotics. Microbial diagnostics. Recombinant vaccines.

Unit # 7: Lecture 13. Plant or Agricultural Biotechnology. Part I. Agriculture and plant transgenesis. Practical applications. Vaccines.

Lecture 14. Plant or Agricultural Biotechnology. Part II. Pesticides. Resistance. Pharmaceutical products. Concerns about human health.

Unit # 8: Lecture 15. Animal Biotechnology. Animals in research. Veterinary Medicine and clinical trials. Bioengineering mosquitoes. Clones. Animal cloning. Transgenic animals. Knock-outs. Bioreactors.

Lecture 16. Forensic Biotechnology. DNA Fingerprinting. Specimen collection, extraction and analysis. DNA and the rules of evidence. DNA profiles. Familial relationships. Mitochondrial DNA. Non-human DNA analysis.

Unit # 9: Lecture 17. Bioremediation and Environmental Biotechnology. Chemicals in the environment. Metabolizing microbes. Phytoremediation. Soils clean up. Bioremediation of water. Wastes into energy. Oil spills clean up. Heavy metals clean up. Biosensors.

Lecture 18. Aquatic Biotechnology. Aquaculture. Fish farming. Genetics of aquatic organisms. Genetic manipulation of aquatic organisms. Medical applications of aquatic biotechnology. Nonmedical products. Environmental applications of Aquatic Biotechnology.

Unit # 10: Lecture 19. Medical Biotechnology. Diagnosis of human diseases. New medicines. Artificial blood. Vaccines. Therapeutic antibodies. Gene therapy. Regenerative Medicine. Stem cell technology. The human genome.

Lecture 20 Regulation in Biotechnology: Regulatory agencies. Notification process. Testing of new products. Experimental use permits. New products approval process. Labeling. Patents and trademarks.

Unit # 11: Lecture 21. Introduction to Ethics in Biotechnology: Biotechnology and nature. Genetically modified crops. Genetically modified animals. Regenerative medicine and stem cell research. Animal and human cloning. Bioterrorism.

Lecture 22. Bioterrorism. Nanoweapons. Biotechnology as a tool for detection, identification and combating bioweapons. CDC and USDA Pulse Net cooperating laboratories for identification of microbes involved in a public health condition, using DNA fingerprinting.

Unit 12: Lecture 23. Introduction to Nanotechnology: Nanostructures. Nanoscale devices. Differences with micro-electromechanical systems and nanobots. Optics and nanotechnology. Tools to measure and make nanostructures. Spectroscopy and electron-microscopy. Sensors and biosensors. Biomedical applications of nanotechnology.

Lecture 24. Introduction to Bioinformatics: Information flow. DNA databases. Gen Bank networks. Topology. Bioinformatics and Pharmacogenomics. Firewalls. Search engines. Modeling simulation. Micro array.

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Artificial intelligence.

Course Core in Detail:

1. Introductory remarks. Concept of Biotechnology. Historical background. Selective breeding of livestock and crops. Fermentation. Recombinant DNA Technology and Biotechnology. Genetic Engineering. The Scientific Method. Observational skills. Objectivity. Skepticism. Experimental evidence. Statistical significance. Logic versus reality.
2. Types of Biotechnology. Microbial Biotechnology. Animal Biotechnology. Agricultural Biotechnology. Aquatic Biotechnology. Bioremediation and Biotechnology. Medical Biotechnology. Forensic Biotechnology. Regulatory Biotechnology.
3. Public perception of biotechnology. Public awareness of genetic engineering. Regulatory requirements and safety of genetically engineered products. Labeling. Policy making. Areas of significant public concern. Introduction to Ethics and Biotechnology. Bioethics. Biotechnology and Nature. Genetically modified (GM) crops. Genetic modification of animals. Need stem cell info here.
4. Introduction to Industrial Biotechnology. Scale –Up of process. Possible hazards from industrial production and use of pathogens. Risk assessment.
5. File name: Genomics: Genes & Genomes. Discovery of DNA. Historical experiments. Cell structure. Prokaryotic and eukaryotic Genomics. DNA. Genes. Genomes and chromosomes. DNA structure. Chromosome structure. FISH.
6. Survey of DNA replication. Transcription. Messenger RNA. Replication, Introns. Exons. RNA splicing. Gene expression. Mutations. Types of mutations. Operons and regulation of gene expression.
7. Recombinant DNA technology. Restriction enzymes or endonucleases. Cleavage of the DNA. Plasmids. DNA vectors. Plasmid vectors. Bacteriophage vectors. Lambda bacteriophage and its importance in genetic engineering. Cosmid vectors. Expression vectors. E. coli in recombinant DNA technology. Bacterial artificial chromosomes. Yeast artificial chromosomes. Ti vectors.
8. DNA cloning. Antibiotic selection. Identification of clones. DNA libraries. Genomic versus cDNA libraries. Library screening. Probes. Hybridization. DNA amplification. Polymerized Chain Reaction (PCR). Reverse transcriptase PCR. (RT-PCR). Real time PCR. In situ PCR.
9. Gel electrophoresis and mapping gene structure with restriction enzymes. Restriction mapping. Agarose gel electrophoresis. Polyacrylamide gel electrophoresis (PAGE). Automated DNA Sequencing.
10. Proteomics. Protein structure. Translation. The genetic code. Transfer RNA. Codons and Anti-codons. Protein synthesis. Ribosomal RNA. Posttranslational modifications. Protein folding. Glycosylation. Phosphorylation. Protein Engineering. Protein expression. Protein purification and analysis.
11. Microorganisms in Biotechnology (think of as tools rather than types). Fermentation. Fermenting microbes. Bioreactors. Yeasts. Lactic acid fermentation. Alcohol fermentation. Microbial enzymes. Industrial Microbiology and Biotechnology. Food products.
12. Bacterial transformation. Electroporation. Microbial proteins as reporters. Reporter genes. Bioluminescence. Luciferase. B-galactosidase. Therapeutic proteins produced in microorganisms by genetic engineering. Antibiotics. Microbial diagnostics. Recombinant vaccines.
13. Biotechnology in plants, and agricultural industry. Transgenic plants. Cloning, growing plants from single cells. Protoplast fusion. Leaf fragment technique. Agrobacterium and the Ti plasmid as a gene vector. Gene guns.
14. Antisense technology in plant biotechnology. Practical applications of biotechnology in the field. Vaccines for plants. Genetic pesticides. Safe storage. Herbicide resistance. Environmental impacts of crops enhanced by biotechnology. Reduction of hunger and malnutrition.
15. Animal Biotechnology. Animal research models. Ethical aspects of animals for research. Production of monoclonal antibodies in animals. Transgenic animals. Knock-out animals. Animal cloning.

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16. (File Name = DNA Fingerprinting and Forensics). Forensic Biotechnology. DNA fingerprinting and restriction fragment length polymorphism (RFLP). Variable number of tandem repeats (VNTR) or Microsatellite DNA methodology. DNA profiling in biological and medical research. Mitochondrial DNA. Non-human DNA analysis.
17. Bioremediation. Environmental genome project. Aerobic versus anaerobic metabolism biodegradation. Oxidation and reduction reactions. Nutrient enrichment, Fertilization. Bioaugmentation or seeding. Phytoremediation.
18. Bioremediation of soil. Bioremediation of water. Wastewater treatment plants. Groundwater clean-up. Turning wastes into energy. Genetically modified organisms in bioremediation. Petroleum-eating bacteria. Engineering E. coli to clean-up heavy metals. Biosensors.
19. Aquatic Biotechnology. Aquaculture and fish farming. Transgenic fish. Novel genes from aquatic species. Green genes. Green fluorescent protein (GFP) and its applications for reporter gene techniques.
20. Medical applications of aquatic biotechnology. Medicines from the sea. Non-medical products. Environmental applications of aquatic biotechnology. Biofilms. Marine organisms as biodetectors and in bioremediation of environmental pollutants.
21. Medical Biotechnology. The power of molecular biology detecting and diagnosing human diseases conditions. Detecting genetic diseases. Spectral karyotype. Karyotyping to test chromosome abnormalities in fetuses and adults. FISH and RFLP analysis. Clinical trials?
22. Allele-specific oligonucleotide (ASO) analysis. Single nucleotide polymorphisms (SNPs). DNA micro array analysis for genome studies and genetic diseases.
23. Pharmacogenomics for personalized medicine. New medicines. Improving techniques for medicine delivery. Nanotechnology and nanomedicine. Biotechnology at the nanoscale. Artificial blood.
24. Gene therapy and Regenerative Medicine. Cells and tissue transplantation. Organ engineering. Regenerative Medicine. Human Embryos and research. Animal and Human Cloning. Stem cells from embryos and adults and their application in therapy. Therapeutic and reproductive cloning. Telomeres and senescence. Applications of the human genome project for the future. Human diseases gene maps.
25. Biotechnology regulations. Primary federal regulatory agencies. USDA, EPA, and FDA. Protection of agriculture by the Animal and Plant Health Inspection Service (APHIS). Notification process of new agricultural products. Experimental use permits for genetically modified organisms been released into the environment. Food and additives recognition by FDA as generally-recognized-as-safe (GRAS) status. The drug approval process. Testing of drugs. Labeling biotechnology products. Waste treatment. QA/QC. Regulatory I, II, III.
26. Introduction to patents. The US Patent and Trademark Office (USPTO). Trademarks and Trade secrets. The Occupational Health and Safety Administration (OSHA) regulations. HAZMATS.
27. Bioterrorism. Bioweapons. Microbes as bioweapons. Biotechnology as a tool for detection, identification and combating bioweapons. CDC and USDA Pulse Net cooperating laboratories for identification of microbes involved in a public health condition, using DNA fingerprinting.
28. Introduction to Nanotechnology. Concept of Nanotechnology. Nanostructures. Nanoscale devices. Difference with Microelectromechanical systems (MEMS) and Nanobots. Electrical conduction. Quantum mechanics. Optics and Nanotechnology. Tools to measure nanostructures. Scanning probe instruments. Electrochemistry. Spectroscopy. Electron microscopy. Tools to make nanostructures. Sensors. Biosensors. Biomedical applications of Nanotechnology.
29. Introduction to Bioinformatics. Bioinformatics Computing. Information flow. Databases. DNA database searching. From NCBI, Basic Local Alignment Search Tool (BLAST). Gen Bank. Networks. Topology. Pharmacogenomics. Firewalls. Encryption. Ownership. Search Engines. Intelligent agents. Artificial intelligence. Computational methods. Data visualization. Statistics. Micro arrays. Pattern matching. Modeling and Simulation.

**Professor's Contact Information**

Professor's Name: Dr. Silvio Arango-Jaramillo  
Office Location: SC 252  
Telephone: 561 207 5072  
Email address: arangos@palmbeachstate.edu  
Home Page: <http://www.palmbeachstate.edu/x461.xml?id=Arangos>  
Office Hours: 11:00 to 12:00 am. M-T-W.  
                  2:00 to 4:00 pm. M.  
                  3:00 to 5:00 pm. T.  
                  2:00 to 5:00 pm. W.

**Class Requirements**

Assignments :Dates and Deadlines for Assignments in the classroom:

Selecting the topic of your presentation before the entire class: Monday, February 20.  
Resume: Monday, March 19.  
Presentations: Monday, March 19, and 26, April 2 and 9.

On Line Assignments and Discussions:

The Deadlines are:

1 and 2: Monday, February 6.  
3 and 4: Monday, February 13.  
5 and 6: Monday, February 20.  
7 and 8: Monday, February 27.  
9 and 10: Monday, March 12.  
11 and 12: Monday, March 19.  
13 and 14: Monday, March 26 .  
15 and 16: Monday, April 2.  
17 and 18: Monday, April 9.  
19 and 20: Monday, April 16.  
21 and 22: Monday, April 23.  
23 and 24: Monday, April 30.

Bioinformatics Assignment: Monday, April 16.

Late Assignment Policy: All required assignments are expected to be completed on time. If, due to an emergency, a student cannot meet the due date, s/he is to request and obtain the approval of an extension from the Professor.

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Grading Scale and Policy: Grading Points:

Here is a summary of the grading system for each one of the components, based on a total of 100 points for the total grade of the course:

For the regular activities with personal presence in the classroom once a week.

4 exams with 10 points each, for a total of 40 points.

One presentation by each one of the participants in front of the entire class: 10 points.

Resume assignment: 5 points.

Participation and attendance to these meeting in the classroom: 10 points.

For the on line activities through the blackboard system:

24 Written research assignments: Total of 20 points.

24 Written discussions: Total of 10 points.

Bioinformatics assignment: 5 points.

Grades will be calculated by the following scale: A: 100-90, B: 89-80, C: 79-70, D: 69-60, F: 59 or below.

Tests, Quizzes, and Final Examination Schedule: Dates for essay exams in the classroom. SC 211.

Exam # 1 : Monday, February 13.

Exam # 2 : Monday, March 19.

Exam # 3 : Monday, April 16.

Final Exam : Monday, April 30.

Make-up Exam Policy: Make up tests are only given in emergency situations. These exams may be in a different format than the original class exam. The student is responsible for the fee to take the proctored test in the Test Center. Special arrangements for make-up exams should be discussed with and approved by the Professor.

### Distance Learning Class Information

This course is taken in part via the Internet (hybrid classes), or includes a web component. Before you decide to take the course under these conditions, it is recommended that you:

- take the following assessments to determine if distance learning is best for you:
  1. [Should I take a distance learning class?](#)
  2. [Do I have enough time to take a distance learning class?](#)
  3. [Do I have the technical skills and knowledge to learn online?](#)
- read the [Distance Learning Frequently Answered Questions](#) page which include instructions for logging onto Blackboard, computer requirements, and basic computer skills students must have prior to enrolling a distance learning class.
- read the syllabus description below carefully.
- contact the professor by e-mail or by phone if you have any questions.

### **Computer Requirements**

If you choose to take this course, you must have access to a computer that meets the [basic computer requirements](http://www.palmbeachstate.edu/x10620.xml) - <http://www.palmbeachstate.edu/x10620.xml>

No additional computer requirements.

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### SLC Computer Lab

If students do not have access to a computer at home, the SLC Computer Lab at a Palm Beach State campus can be used to complete course assignments. Visit the SLC Computer Lab web page at <https://www.palmbeachstate.edu/x13669.xml> for location and hours.

**IT IS RECOMMENDED THAT THE STUDENT TAKING THIS COURSE AS A HYBRID COURSE NOT BE A NOVICE COMPUTER USER. THE STUDENT SHOULD KNOW HOW TO USE A MOUSE, NAVIGATE THE INTERNET, AND SEND/RECEIVE E-MAIL WITH ATTACHMENTS. VISIT THE FOLLOWING WEB PAGE FOR MORE INFORMATION REGARDING MINIMUM COMPUTER SKILLS STUDENTS MUST HAVE PRIOR TO ENROLLING IN A HYBRID COURSE - <http://www.palmbeachstate.edu/x10620.xml>.**

This course has an Internet web site located at: <https://palmbeachstate.blackboard.com>

The course web site will be available three days prior to the start of the semester. Your password will not work until that time. It is the student's responsibility to have accessed this site no later than Thursday, January 5. The web site has a security system which requires a *Sign on* and a *Password*. Only registered students will be able to access the course.

### To login to the course web site:

Go to <https://palmbeachstate.blackboard.com> **User Name:** Use your Palm Beach State Student ID Number (no hyphens). Your Palm Beach State Student ID Number can be found on the back of your student ID card. If you do not have a student ID card, you can obtain one in the bookstore at Lake Worth campus. For obtaining a student ID card on other campuses, check with the campus directly. **Password:** The student's Blackboard password will be the student's Palm Beach State Pin Number.

### What do I do if I forget my password or need assistance with Blackboard?

E-mail the Blackboard administrator at [adminwebct@palmbeachstate.edu](mailto:adminwebct@palmbeachstate.edu). You can also contact the Palm Beach State Student Helpdesk by sending an e-mail to [studenthelpdesk@palmbeachstate.edu](mailto:studenthelpdesk@palmbeachstate.edu) or contacting them by phone at (561) 868-4000. Be sure you have the following information available:

- your full name
- your Palm Beach State Student ID number
- course with the reference number
- details of the assistance needed and any error messages
- The Student Help Desk Hours of Operation are posted on the following web page:  
<http://www.palmbeachstate.edu/x6363.xml>.

On hours and days that the Help Desk is closed, the student may leave a voice message or an e-mail and the issue will be addressed the next business day.

### Class Policies and Methodology

**Attendance:** Professors are required to take attendance. Professors are required to take attendance. Participation and attendance to at least 80 % of the weekly discussions or meetings.

**Electronic Device Use:** No specific limitations.

**Email Policy:** The e mail of the Blackboard system will be the regular one to use. As an alternative, you may also send an e mail through the official Palm Beach State system, meaning the: [@my.palmbeachstate.edu](mailto:@my.palmbeachstate.edu)

**Equipment and Supplies:** No special equipment or supplies.

**Professor's Expectations:** The student should participate in at least 80 % of the weekly discussions on campus about the different topics, the exams, and with the on line components of the course including assignments and discussions.

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Methods of Instruction: On line lectures, and weekly discussion meetings on campus, plus assignments, discussions, and presentations.

Unique Requirements of the Class: No other than the ones mentioned above.

## College Policies and Web Information

### **Academic Dishonesty**

Academic dishonesty includes the following actions, as well as other similar conduct aimed at making false representation with respect to the student's academic performance:

(1) Cheating on an exam, (2) Collaborating with others on work to be presented, if contrary to the stated rules of the course, (3) Submitting, if contrary to the rules of the course, work previously submitted in another course, (4) Knowingly and intentionally assisting another student in any of the above actions, including assistance in an arrangement whereby work, classroom performance, examination, or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed, (5) Plagiarism.

Please refer to the **Palm Beach Community College Student Handbook**

([www.palmbeachstate.edu/Documents/Marketing/studenthandbook.pdf](http://www.palmbeachstate.edu/Documents/Marketing/studenthandbook.pdf)) for further information.

### **Classroom Etiquette and Student Behavior Guidelines**

Students will demonstrate respect for professors and fellow students. Behavior that is disruptive to a positive learning environment reported by the professor will result in a warning on the first instance; the second instance might result in expulsion from the course or campus.

### **Computer Competency Component**

Each student will, to the satisfaction of the professor, demonstrate a fundamental understanding of basic computer operations through various professor-determined exercises and/or assignments.

### **Disability Support Services**

Students with disabilities are advised, in compliance with federal and state laws, that accommodations and services are available through the office of Disability Support Services (DSS). It is the student's responsibility to contact Disabled Student Services Advisors and to submit appropriate documentation prior to receiving services. Please see the website at [www.palmbeachstate.edu/disabilities.xml](http://www.palmbeachstate.edu/disabilities.xml).

### **Eating, Drinking and Smoking**

Eating and drinking are confined to areas designated on the campus. Smoking is not permitted in any College building and only in areas designated at each campus.

### **Student Responsibility Policy**

When a student attends the College, s/he becomes subject to its jurisdiction. Students are expected to conduct themselves in a responsible manner, in all areas of campus life. By enrolling, they pledge to obey the rules and regulations of the College and are responsible for observing all College policies and procedures as published in the student handbook, the College catalog and other College publications. The student will be responsible for preparing for class, participating in class, and completing assignments on time.

### **Palm Beach State Websites of Interest**

Please see this web page ([www.palmbeachstate.edu/x340.xml](http://www.palmbeachstate.edu/x340.xml)) for a list of web addresses for students.

### **Withdrawal Policy for Individual Courses**

The last day to withdraw from a College course with a "W" grade in this course is Tuesday, March 27. It is the responsibility of the student to use the PantherWeb system or visit a campus Registrar's office to withdraw. An official withdrawal entitles the student to a grade of "W" in the class.

## **Department Contact Information**

Palm Beach State College  
Course Syllabus – Hybrid/Web Content

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Department Contact Name: Dr. Silvio Arango-Jaramillo  
Office Location: SC 252  
Telephone: 561 207 5072  
Fax Number: 561 207 5005  
Email address: arangos@palmbeachstate.edu

Getting Started with a Web Class

1. Make sure you have all the computer system requirements as listed in the Computer Requirements section of this syllabus.
2. E-Mail the professor at: arangos@palmbeachstate.edu, with your name and phone number. The professor will communicate with you through Blackboard or your Palm beach State-issued email address.
3. Obtain course materials. The textbook(s) can be purchased at the Palm Beach State campus bookstore or online at <http://www.efollett.com>.
4. Log onto the course web site at :<https://palmbeachstate.blackboard.com> Use your [Pantherweb](#) logon information.
5. Once inside the course website, read the "Mandatory Online Orientation" and complete the *Orientation Quiz*.
6. Explore the different parts of the web page. Be sure to print the **syllabus, course calendar, and assignment sheet** so that you know what is expected of you during the semester.
7. Read the instructor's *Welcome* message on the discussion board and post a reply to it introducing yourself to the class.
8. Begin completing your assignments as listed on the course calendar.

Have fun!

February 2010