



## Biotechnology Career Plan at Palm Beach State College



# PALM BEACH STATE COLLEGE BIOTECHNOLOGY PROGRAM

## What is Biotechnology?

Biotechnology is the field of applied biology and chemistry. Biotechnology harnesses cellular and biomolecular processes to develop technologies and products that help improve our lives and the health of our planet. Application areas of biotechnology include medicine, agriculture, industrial and marine processes. Well-known accomplishments of biotechnology include the Human Genome Project, cloning and gene therapy. Within these disciplines, biotechnologists may work in the areas of research, development, manufacturing, analysis and education.

## Biotechnology Program Mission Statement

The mission of the Palm Beach State College Biotechnology Program is to foster a sense of career for scientific discovery, teamwork, critical thinking, effective communication, and a positive professional attitude in students.

## Biotechnology Program Goals

1. To provide students both academic instruction and professional training in the field of biotechnology to meet the employment needs of Florida and beyond.
2. To maintain both high academic and professional standards in the program so that students may upon graduation find work in the biotechnology field or continued with their education in science.
3. To serve as a resource for biotechnology laboratories in Palm Beach County area.

## Biotechnology Admission Requirements (Controlled Access Program)

1. Have a standard high school diploma or GED.
2. Meet current requirements for admission to PBSC found at: <http://www.palmbeachstate.edu/admissions/default.aspx>
3. Cumulative grade point average (GPA) must be at least 2.6 in all-previous college work attempted.
4. Attend a Mandatory Information Session. The schedule for upcoming information sessions can be found on the Biotechnology webpage.
5. Turn in the signed Acknowledgement of Receipt of Biotech Program Advising Manual.
6. Turn in the signed Acknowledgement of Biotech Program Requirements.
7. Have completed the following courses with a grade of C or higher:

BSC1010 Principles of Biology 1 (3 credits)	MAC1105 College Algebra (3 credits)
BSC1010 Principles of Biology 1 Lab (1 credit)	ENC1101 College Composition 1 (3 credits)
CHM1045 General Chemistry 1 (3 credits)	BSC2421 Introduction to Biotechnology (3 credits)
CHM1045L General Chemistry 1 Lab (1 credit)	BSC2421L Introduction to Biotechnology Lab (2 credits)

- For information on Academic Advising: <http://www.palmbeachstate.edu/advising/>
- Please RSVP for and attend an info session for complete information. For program-specific questions, please contact the Biotechnology Department by calling 561-207-5055 or email the Biotechnology Program Department Chair, Dr. Alexandra Gorgevska ([gorgevs@palmbeachstate.edu](mailto:gorgevs@palmbeachstate.edu)).

**Note:** BSC2421/L Introduction to Biotechnology lecture and lab qualify as general education courses. These courses do not have mandatory pre-requisites, however, it is strongly advised that you complete BSC1010/L and CHM1045/L, as well as MAC1105, before taking BSC2421/L in order to increase your chances of success.

## Biotechnology Program Options

PBSC students have several options:

### **Associates of Science (AS) (61 credits)** (Program Code: 2158)

**Degree in Biotechnology** This degree program is designed for students who will seek employment as biotechnology research technicians, biological technicians, cell culture technicians, positions in bioinformatics or biotechnology manufacturing technicians, or for persons wanting career advancement already employed in the field.

Program content includes core biotechnical laboratory techniques and industry workplace experience, biohazard and safety procedures, biology and chemistry concepts, algebraic and statistical analysis, and basic microbiology concepts.

### **Biotechnology Laboratory Specialist 30-credit CCC** (Program Code: 6160)

The 30-credit College Credit Certificate program has been designed for AA students interested in biotechnology concepts, techniques and equipment. Relevant topics such as molecular biology, recombinant DNA technology, nucleic acid (DNA and RNA) extraction and analysis, plasmid transformation, polymerase chain reaction and agarose gel electrophoresis will be covered. Students will gain a solid foundation in biology, chemistry, and microbiology.

The Biotechnology Laboratory Specialist College Credit Certificate provides the student with comprehensive knowledge, specific competencies and lab techniques that enhance current skill while establishing a foundation for a successful bioscience career.

This 30-credit certificate offers courses in biotechnology principles, biology, general chemistry and microbiology.

### **College Credit Certificate in Biotechnology 19-credit CCC** (Program Code: 6159)

The 19-credit CCC (18-month program) has been designed for those students who have a bachelor's degree in a related life science discipline and would like to pursue a biotechnology career but need supplemental course-work in select courses to work in biotechnology or who are currently employed in the biotechnology industry.

The Biotechnology CCC provides the student with comprehensive knowledge, specific competencies, and lab techniques that enhance current skills while establishing a foundation for a successful bioscience career.

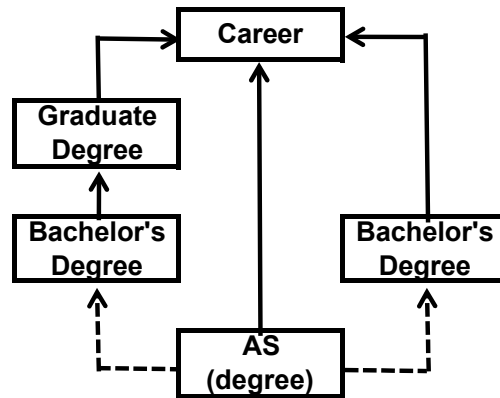
This 19-credit certificate offers courses in biotechnology principles, tissue culture, instrumentation, and bioinformatics and may include an internship with local bioscience firms and institutions.

### Course Options and Considerations for AA students

BSC2421/BSC2421L, Introduction to Biotechnology lecture and laboratory courses do not have biotechnology course prerequisites and students not majoring in biotechnology still needing course credits to transfer into subsequent science programs may wish to take BSC2421/BSC2421L, which are general education fulfillment courses.

### Biotechnology Program Roadmaps

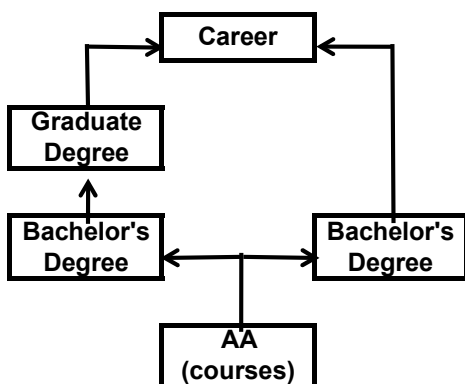
#### Associates of Science (AS)



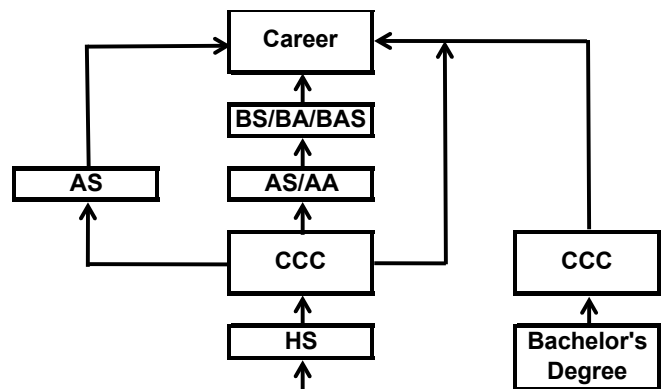
Some classes may not transfer; thus an AS degree student may need to take additional courses.

We encourage AA students to consider adding the Biotech A.S. as a second degree objective to benefit from the advanced coursework and internship opportunities offered only to A.S. students

#### Associates of Arts (AA)



#### College Credit Certificate (CCC)





## Biotechnology Program Sequence and Length

### Suggested course sequence for AS degree (61 credits)

#### Semester 1 (14 credits)

ENC1101 College Composition I (3)  
MAC1105 College Algebra (3)  
BSC1010 Principles of Biology 1 (3) (see note 1)  
BSC1010L Principles of Biology 1 lab (1)  
CHM1045 General Chemistry 1 (3)  
CHM1045L General Chemistry 1 lab (1)

#### Semester 2 (16 credits)

Any course from Humanities – Area II (3)  
BSC2421 Introduction to Biotechnology (3) (see note 2)  
BSC2421L Introduction to Biotechnology lab (2)  
CHM1046 General Chemistry 2 (3)  
CHM1046L General Chemistry 2 lab (1)  
MCB2010 Microbiology (3) (see note 3)  
MCB2010L Microbiology lab (1)

#### Semester 3 (16 credits)

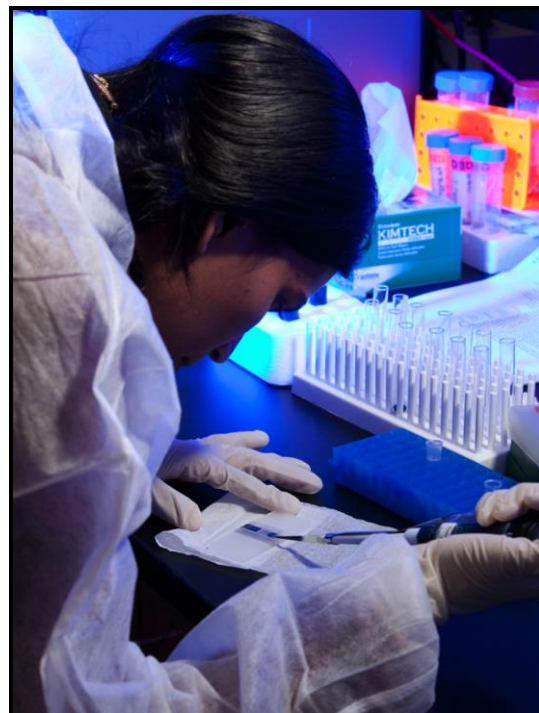
Any course from Social Science – Area V (3)  
BSC2420 Biotechnology 1 (3)  
BSC2420L Biotechnology 1 lab (2)  
BSC2416C Introduction to Tissue Culture lab (2)  
BSC2426C Introduction to Biotechnology Instrumentation lab (2)  
CHM2210 Organic Chemistry 1 (3)  
CHM2210L Organic Chemistry lab 1 (1)

#### Semester 4 (13 credits)

BSC2427 Biotechnology 2, Molecular Biology, Cell and Immunobiology (3)  
BSC2427L Biotechnology 2, Molecular Biology, Cell and Immunobiology lab (2)  
BSC2435 Introduction to Bioinformatics (1)  
CHM2211 Organic Chemistry 2 (3)  
CHM2211L Organic Chemistry lab 2 (1)  
STA2023 Statistics (3)

#### Semester 5 (2 credits)

BSC2945C (2) Biotechnology Internship



## AS Degree Notes

1. BSC1010 has a course section (currently taught by Dr. Fairbanks) that will emphasize biotechnology and students with a biotechnology major are encouraged to, but are not required to, enroll in this section.
2. Although BSC1010, CHM1045, and MAC1105 are not required for BSC2421, it is strongly recommended that students take one or more of these courses before enrolling in BSC2421.
3. MCB2010 is the required microbiology course for the Biotechnology AS Program. However, MCB2010 will not transfer as a required microbiology course at most four-year colleges, when transferring as a biology major. Most Florida four-year colleges will only accept microbiology courses that are MCB with final two numbers as 20 or higher. Examples of these courses are MCB2020, MCB3020, and MCB3023.
4. Likewise STA2023 some four year schools will not accept STA2023 as their required statistics course. One notable exception is the University of Florida, which accepts STA2023 for all their biology majors' programs. PBSC students should be aware of these limitations and exceptions and plan accordingly.

## Advanced Placement Core Curriculum

Qualified high school students who have successfully completed four years of a local biotechnology academy [at Seminole Ridge, Spanish River or Palm Beach Lakes High Schools], with a grade of C or better in all biotech coursework are eligible to take a PBSC Biotechnology Challenge Exam. This exam is composed of three parts: Lecture, Lab-theoretical and Lab-hands-on. A passing grade of 80% on all parts of the exam is required in order to receive five college credit hours for BSC 1404C, which would then allow the student to enroll directly into Biotechnology I (BSC 2420) Lecture & Lab.

## Biotechnology Program Progression

In order to successfully progress through PBSC programs, the student must:

- Meet all program course and GPA requirements.
- Complete pre-requisite courses before progressing in the program, which for all the biotechnology courses is BSC2421/BSC2421L.
- Be enrolled in co-requisite courses at the same time (may not drop lab and keep lecture course for any co-requisite biotechnology course).
- Achieve a minimum grade of "C" in all courses.
- Satisfactorily meet course objectives.
- Receive faculty assessments indicating the positive likelihood for the student to have a successful internship.
- Conduct yourself in a respectful, professional manner.

**PBSC Biotechnology Program A.S. Degree and CCC Course Requirements:**

<b>COURSE</b>	<b>TITLE</b>	<b>CREDIT HOURS</b>	<b>AA/AS Degree</b>	<b>30-credit CCC**</b>	<b>19-credit CCC</b>
<b>ENC1101</b>	College Composition I	3	•		
<b>MAC1105</b>	College Algebra	3	•	•	
<b>STAT2023</b>	Statistics	3	•		
<b>BSC1010</b>	Principles of Biology I	3	•	•	
<b>BSC1010L</b>	Principles of Biology I Lab	1	•	•	
<b>MCB2010</b>	Microbiology	3	•	•	
<b>MCB2010L</b>	Microbiology Lab	1	•	•	
<b>CHM1045</b>	General Chemistry I	3	•	•	
<b>CHM1045L</b>	General Chemistry I Lab	1	•	•	
<b>CHM1046</b>	General Chemistry II	3	•	•	
<b>CHM1046L</b>	General Chemistry II Lab	1	•	•	
<b>CHM2210</b>	Organic Chemistry I	3	•		
<b>CHM2210L</b>	Organic Chemistry I Lab	1	•		
<b>CHM2211</b>	Organic Chemistry II	3	•		
<b>CHM2211L</b>	Organic Chemistry II Lab	1	•		
<b>Humanities</b>	Any Course	3	•		
<b>Social</b>	Any Course	3	•		
<b>BSC2421</b>	Introduction to Biotech	3	•	•	•
<b>BSC2421L</b>	Introduction to Biotech Lab	2	•	•	•
<b>BSC2420</b>	Biotech I	3	•	•	•
<b>BSC2420L</b>	Biotech I Lab	2	•	•	•
<b>BSC2427</b>	Biotech II	3	•		•
<b>BSC2427L</b>	Biotech II Lab	2	•		•
<b>BSC2431</b>	Bioinformatics	1	•	•	
<b>BSC2416C</b>	Tissue Culture	2	•		•*
<b>BSC2426C</b>	Biotechnology Instrumentation	2	•		•*
<b>BSC2945C</b>	Biotech Internship	2	•		•*
<b>TOTAL CREDIT HOURS</b>			<b>61</b>	<b>30</b>	<b>19</b>
<p><b>*4 Elective Credits required for 19-credit CCC</b>  <b>**30 Credit Biotech CCC (6160) is eligible for Title IV Financial Aid</b></p>					

## PBSC Course Descriptions

### **BSC2421 Introduction to Biotechnology Lecture**

This lecture course provides 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 proteomics with DNA protein structure function. It will emphasize in the molecular biology aspects of genetic engineering and recombinant DNA technology. Ethical, legal, social concerns and implications of biotechnology will also be addressed. A grade of C or higher is required for this course to be used as a General Education course. Recommended Prerequisites: BSC1010, BSC1010L, CHM1045, CHM1045L (with a grade of C or higher); Corequisite: BSC2421L (with a grade of C or higher)

### **BSC2421L Introduction to Biotechnology Laboratory**

Co requisite: BSC2421 This laboratory course provides hands on experience for basic and common biotechnology laboratory techniques in the areas of laboratory safety, aseptic techniques, measurements and calculations, preparation of solutions, use of pH meters, spectrophotometers, centrifuges, etc., as well as training in specific biotechnology techniques, including DNA extraction and amplification, gene cloning, nucleic acids and protein isolation and identification. A grade of C or higher is required for this course to be used as a General Education course. Prerequisites: BSC1010, BSC1010L, CHM1045, CHM1045L (with a grade of C or higher); Corequisite: BSC2421 (with a grade of C or higher)

### **BSC2420 Biotechnology 1 Lecture**

This course provides a specific approach to the main topics of biotechnology, starting with Genomics and Recombinant DNA Technology and Genetic Engineering, continuing with Proteomics, with protein expression, structure, processing, production, and purification. All these followed with examples of microbial biotechnology including: fermentation, bioreactors, and industrial microbiology with biotechnology. It also includes biotechnology in plants, animals and agricultural industry, bioremediation and the environment, as well as aquatic biotechnology. There is a strong emphasis in biomedical and forensic biotechnology including vaccinology, pharmacogenomics, the human genome, regenerative medicine, gene therapy, cloning, and stem cell applications and implications. Prerequisites: BSC1010, BSC1010L, BSC2421, BSC2421L, CHM1045, CHM1045L (with a grade of C or higher); Corequisites: BSC2420L, CHM1046, CHM1046L (with a grade of C or higher)

### **BSC2420L Biotechnology 1 Laboratory**

This laboratory course includes hands on experience for the students with some of the basic and common biotechnology laboratory techniques in the areas of genomics, proteomics, genetic engineering, and recombinant DNA technology. Prerequisites: BSC1010, BSC1010L, BSC2421, BSC2421L, CHM1045, CHM1045L (with a grade of C or higher); Corequisites: BSC2420, CHM1046, CHM1046L (with a grade of C or higher)

### **BSC2416C Introduction to Tissue Culture Laboratory**

Introduction to Tissue Culture is a course designed to provide students with hands-on experience in the proper laboratory methodology and techniques associated with



various cell and tissue cultures. The purpose of this course is to introduce students to the components of a tissue culture laboratory (equipment, instruments, etc.) and provide them with a basic understanding of the proper use and care of these components. Students will be exposed to various cell culture lines and learn how to handle and maintain different cells, prepare various media solutions, carry-out general tissue culture assays (such as transfections) and perform a batch scale-up of cells using bioreactors. Prerequisites: BSC1010, BSC1010L, BSC2421, BSC2421L (with a grade of C or higher)

### **BSC2426C Introduction to Biotechnology Instrumentation Laboratory**

This course is designed to provide hands-on experience in some of the basic and essential instrumentation skills required in chemistry, molecular biology, and biotechnology. Students will learn the basics of laboratory safety, aseptic technique, measurements, and calculations and preparation of solutions/samples. This knowledge will then be applied to advanced instrumentation utilizing spectrophotometers, centrifuges, thermal cyclers, automated DNA sequencing by PAGE, GC/MS, FPLC, and bioreactors. Students will also gain a well-rounded understanding of the maintenance of these various instruments; from ordering supplies to requesting technical support and daily/monthly maintenance. Prerequisites: BSC1010, BSC1010L, BSC2421, BSC2421L (with a grade of C or higher); Recommended Corequisites: CHM1046, CHM1046L (with a grade of C or higher)

### **BSC2427 Biotechnology 2, Molecular Biology, Cell & Immunobiology Lecture**

This lecture course explores the basic foundations of modern biotechnology, specifically that of proteomics, which is the study of protein structure and function. Emphasis is on protein formation and interactions, along with molecular and cell applications of genetic engineering, recombinant DNA technology, including hands on lab-exercises in the main general techniques. It also includes molecular analysis of the latest advances in oncology, pharmacogenomics, and stem cell technology. The final part of the course focuses on basic concepts of immunobiology and medical immunology, which are relevant to biomedical biotechnology, particularly in the areas of applications of monoclonal antibodies, anti allergic medications, recombinant DNA vaccines, transplants, immunomodulation and gene therapy. Prerequisites: BSC2420L, CHM1045, CHM1045L; Corequisites: BSC2427L, CHM1046, CHM1046L (with a grade of C or higher)

### **BSC2427L Biotechnology 2, Molecular Biology, Cell & Immunobiology Laboratory**

This course provides a deep exploration of the foundations of molecular biotechnology, with emphasis on proteomics, which includes the study of protein structure, isolation, identification, and purification. We will explore areas of immunobiological assays, which are relevant to biomedical biotechnology, particularly in the areas of applications of monoclonal and polyclonal antibodies and antigen detection assays. Cell and tissue culture technology and techniques will also be addressed. Mutagenesis and protein engineering, including fermentation and bioreactors, and protein separation, analysis and interactions will also be addressed. Prerequisites: BSC2420, BSC2420L,

CHM1046, CHM1046L (with a grade of C or higher); Corequisites: BSC2427L, CHM2210, CHM2210L (with a grade of C or higher)

### **BSC2435 Introduction to Bioinformatics Lecture**

Course includes current topics in bioinformatics and computational biology as well as methods for high throughput data collection, storing, and accessing biological data. Also included are programs and algorithms used to analyze data. Prerequisites: BSC2421/BSC2421L (with a C or higher)

### **BSC2945C Biotechnology Internship course**

This is a practical application of procedures in the real world settings with biotechnology and closely related disciplines. This experience will allow the student to perform hands on work and observation of biotechnology in any kind of institution directly or indirectly related with the field which includes but is not limited to; academic, governmental, private industry or research oriented institutions and other fields with similar experiences. Prerequisites: BSC2427, BSC2427L, CHM2210, CHM2210L (with a grade of C or higher); Corequisites: CHM2211, CHM2211L (with a grade of C or higher)

Upon completion of this laboratory course a student should be able to: develop an individual career plan; write a resume and successfully interview for an internship position; demonstrate safety skills in the workplace; maintain positive relations with others through teamwork and supervision; maintain a work notebook; write a final report; prepare a presentation describing the internship; and analyze the organizational structure of the host bioscience company or research institution.

This is an internship course to be conducted in a bioscience company or research institution. The student will conduct 320 hours of research/work during the term. The training schedule will be determined by and agreed upon by internship supervisor and student. Students will submit timesheets on a bi-monthly basis. In addition, the student is required to meet periodically with a PBSC biotechnology professor on an as needed basis.



## Career Opportunities

### The U.S. Biotechnology Industry

The United States is currently the world leader in the research, development, and commercialization of biotechnology products. According to the Battelle/BIO State Bioscience Initiatives 2010 report, the U.S. employment in the bioscience sector reached 1.42 million in 2008, a gain of 19,000 bioscience industry jobs in the United States since 2007. Compensation in biotechnology companies is competitive and includes incentives, such as stock option plans, 401K plans, company-wide stock purchase plans, and cash bonus plans.

### Careers in Biotechnology

The following is a list of typical, entry-level biotechnology positions. A degree in biotechnology provides you with a foundation to work in many inter- and cross-disciplinary fields of Industry, Manufacturing, Government, Academia, and Research such as, but not limited to: biology, chemistry, biotechnology, microbiology, biochemistry, lab aid/technician/specialist, etc.

\*Note, salaries, which are based on information taken from: *Careers in Biotechnology a Counselor's Guide to the Best Jobs in the United States*. 3rd Edition by G. Frierman-Hunt and J. Solberg (available for download from Bio-Link

<http://www.bio-link.org/home/careers>):

## **Entry Level Jobs**

### ***Lab Assistant***

**Education:** High school diploma required, with biotechnology certificate preferred; AS or equivalent experience with scientific background

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$20,000 - \$33,000

### ***Laboratory Automation Specialist***

**Education:** High school diploma required, with biotechnology certificate preferred; AS or equivalent experience with scientific background

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$20,000 - \$33,000

### ***Lab Technician***

**Education:** High school diploma required, with biotechnology certificate preferred; AS or equivalent experience with scientific background

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$23,000 - \$35,000

### ***Manufacturing Technician***

**Education:** At least some college with science and math courses

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$25,000 - \$40,000

### ***Quality Assurance Specialist***

**Education:** Usually requires a bachelors degree

**Experience:** Minimum 0-2 years' related experience

**Approx salary range:** \$40,000 - \$60,000

### ***Quality Control Technician***

**Education:** Usually requires a bachelors degree

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$30,000 - \$60,000

### ***Research Associate***

**Education:** Usually requires a bachelors degree

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$30,000 - \$70,000

### ***Animal Technician***

**Education:** Usually requires associate degree in veterinary technician or similar field; may require American Association for Laboratory Animal Science (AALAS) certification

**Experience:** Minimum of 0-2 years' veterinary laboratory experience

**Approx salary range:** \$19,000 - \$25,000

### ***Bioinformatics Specialist***

**Education:** Bachelor's or Master's degree

**Experience:** Interest in biology and has computer skills

**Approx salary range:** \$45,000 - \$60,000

***Documentation Coordinator***

**Education:** High school diploma or associate degree

**Experience:** Minimum 0-2 years' related experience

**Approx salary range:** \$24,000 - \$28,000

***Forensic DNA Analyst***

**Education:** Usually requires a bachelors degree

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$30,000 - \$50,000

***Health and Safety Specialist***

**Education:** Usually requires a bachelors degree

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$40,000 - \$50,000

***Instrumentation/Calibration Technician***

**Education:** Need certificate in instrumentation or an associate degree in electronics, engineering or computers

**Experience:** Minimum 0-2 years' related laboratory experience

**Approx salary range:** \$30,000 - \$45,000

***Clinical Research Associate***

**Education:** Usually requires a bachelors degree or registered nurse training

**Experience:** Minimum 1-2 years' related laboratory experience

**Approx salary range:** \$35,000 - \$45,000

***Sales Representative***

**Education:** Usually requires a bachelors degree in life science field

**Experience:** Minimum 2 or more years' related laboratory experience

**Approx salary range:** \$45,000 - \$60,000

***Technical Service Representative***

**Education:** Usually requires a bachelor's degree in life science field, but some positions require only an associate degree

**Experience:** Minimum 2 or more years' related laboratory experience

**Approx salary range:** \$30,000 - \$60,000



**Alexandra Gorgevska, Ph.D. (Wayne State University)**  
**Professor III & Department Chair, Biotechnology Program**



**Dr. Alexandra Gorgevska** is the Department Chair for Biotechnology at Palm Beach State College. She served as the Department Chair for the Natural Sciences Department from 2011-2018. She also served as the Interim Associate Dean of Academic Affairs at the Palm Beach Gardens Campus in 2017, overseeing all Natural Sciences, Allied Health, Health Concepts and Nutrition, Paralegal Studies and Business & Entrepreneurship. She received her Bachelor's Degree in Biochemistry & Business Management from the [University of Michigan](#) and her Ph.D. in Biochemistry from the Department of Chemistry at [Wayne State University](#) specializing in DNA-protein cross-links. Her research involved the investigation and discovery of novel mechanisms and structures of formalin cross-link formation between DNA and proteins that form as a result of the fixation process during biopsy preservation. She has worked as a research technician in the Vascular Research Laboratory at [William Beaumont Hospital](#) and a research fellow at the University of Michigan-Department of Physiology studying peripheral vascular occlusive disorders. She was a post-doctoral research fellow at the [National Institutes of Health](#) in the National Institute on Aging, where she investigated the mechanisms of rare premature aging disorders, primarily that of Werner's Syndrome.

Dr. Gorgevska has and continues to be involved with the development and expansion of biotechnology curricula to meet the needs of the emerging bioscience community. In 2009, she was honored with the Distinguished New Faculty Award at the 20th International Conference on College Teaching and Learning. She was a research mentor with the U.S. Army eCybermission program. She also served as the Curriculum Development Manager for the Employ Florida Banner Center for Life Sciences at Palm Beach State College, which was a 3-year 1.2 million dollar grant-funded strategic plan to modernize Florida's workforce in order to meet the workforce needs of the state. Dr. Gorgevska was the Principal Investigator for a [National Science Foundation](#) Advanced Training Education (NSF-ATE) grant, a 2-year \$200,000 funded project that helped to increase enrollment, retention and success of biotechnology students within the program and into their careers. She worked with the Quantum Foundation Science Path Institute, which was a 3-year grant initiative to provide professional development training and updated curriculum for high school science teachers. She helps represent the PBSC Biotechnology Program as part of the LSSF, [Life Sciences South Florida](#) consortium, including serving on the student research symposium planning committee. She worked with the PBSC Math & Science Institute for 10 years, which was a summer honors program for dual enrolled and PBSC students. She is currently involved with the [PBSC STEM Collegiate High School](#) program. She is also a chemistry instructor with the [AAUW Tech Trek](#) summer program for 8<sup>th</sup> grade girls. She strives to provide high quality instruction by recruiting well-qualified adjunct instructors from industry and research. She provides career mentorship to students in addition to seeking new, relevant curriculum to help train a well-qualified workforce.

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[Faculty home page](#)

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**Mark Clementz, Ph.D. (Loyola University Chicago)**

**Professor I, Faculty**



**Dr. Mark Clementz** is a professor of Biotechnology and Microbiology at Palm Beach State College. He completed his postdoctoral fellowship at The Scripps Research Institute in the laboratory of Susana Valente. He earned his B.S. in Biology from Benedictine University and Ph.D. in Microbiology and Immunology from Loyola University Chicago. In his pre-doctoral work, he studied antagonism of the innate immune system by SARS coronavirus. As a postdoc, he characterized host cell restriction factors of HIV replication as well as investigated the mode of action of an HIV Tat inhibitor along with generation and characterization of HIV mutant virus against this inhibitor.

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[Faculty home page](#)

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**Sritana Yasui, Ph.D. (Ohio University)**

**Adjunct Instructor, Faculty**



**Dr. Sritana Yasui's** passion is making chemistry a more enjoyable and manageable subject to students, rather than a cringe-worthy requirement. She has combined experiences in research at federal and academic laboratories - with over 25 papers published; along with teaching at college and high school levels. These experiences have made her realize how crucial a chemistry background is for students, and she strives to help them develop an appreciation, and ultimately a passion for the subject. While she has a core method of teaching chemistry, it is adjusted every semester based on the background of each student.

Dr. Yasui graduated from Ohio University with Ph.D. in physical organic chemistry and worked at the Forensic Chemistry Center, US Food and Drug Administration (FDA); University of Illinois (UIC) and Texas Christian University (TCU). Her research focused on food and drug tampering and/or poison cases; structures of proteins and small chiral molecules; and enzyme kinetics of heme porphyrins.

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**Kevin Ogden, Ph.D. ( Emory University )**  
**Adjunct Instructor, Faculty**



**Dr. Kevin Ogden** has over 15 years of biomedical and bioinformatics research experience. He earned his B.S. in Physiology from Michigan State University, during which time he conducted research in the lab of Dr. Stephanie Watts in the Pharmacology and Toxicology Department. He examined how altered serotonin signaling mechanisms in arteries contributes to hypertension. He then earned his Ph.D. in Molecular and Systems Pharmacology from Emory University. During his Ph.D. studies with Dr. Stephen Traynelis in the Department of Pharmacology at Emory University, he investigated cellular communication in the brain and how disruption of this communication can lead to diseases such as schizophrenia and Alzheimer's disease. He

defined two new drug-binding sites on an important signaling molecule in the brain, the NMDA receptor. He was also part of an interdisciplinary team project comprising pharmacologists and medicinal chemists that led to discovery of the first subunit-selective NMDA receptor positive allosteric modulator. Dr. Ogden next joined Dr. Gavin Rumbaugh's lab at Scripps Florida to study how altered function of genes commonly mutated in intellectual disability and epilepsy contribute to the disrupted neural activity associated with these disorders. After Scripps, he moved into the genomics industry as a senior computational biologist at Ocean Ridge Biosciences. He develops new bioinformatic pipelines and evaluates genomic algorithms to address complex problems in next generation sequencing data analysis such as discovering new variants from RNA sequencing and estimating differential transcript isoform usage. He also designs custom ad-hoc analysis approaches tailored to discover new biological trends and insights from RNA sequencing experiments.

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**Additional information may be found at our website:**

Palm Beach State College Biotechnology Program:

<https://www.palmbeachstate.edu/career-pathways/pathway-stem.aspx#as>

Palm Beach State College Catalog Information on Biotechnology Program Options:

<http://www.palmbeachstate.edu/catalog/current/degrees-programs/science-and-environment/biotechnology-as.aspx>

Palm Beach State College Biotechnology Program LinkedIn Networking Group Page:

<https://www.linkedin.com/groups/3870322>

Palm Beach State College Biotechnology Program Facebook Page: <https://www.facebook.com/pbscbiotech/>

Palm Beach State College Biotechnology Program Instagram Page: <https://www.instagram.com/pbscbiotech/>

**Additional information may be found at other websites:**

BIO: <https://www.bio.org/>

BioFlorida: [www.bioflorida.com](http://www.bioflorida.com)

BioFlorida Career Center: <http://med.bio.fl.associationcareernetwork.com/Common/HomePage.aspx>

Bio-Link: [www.bio-link.org/home/](http://www.bio-link.org/home/)

Bioscience & Analytics of South Florida, BASFL: <http://basflorida.org/>

Biospace.com: [www.biospace.com](http://www.biospace.com)

Biotechnology Industry Organization (BIO): [www.bio.org](http://www.bio.org)

Business Development Board: [www.bdb.org](http://www.bdb.org)

Career Builder.com: [www.careerbuilder.com](http://www.careerbuilder.com)

Career Source Palm Beach County: [www.careersourcepbc.com/](http://www.careersourcepbc.com/)

Employ Florida: [www.employflorida.com](http://www.employflorida.com)

Enterprise Florida: [www.eflorida.com](http://www.eflorida.com)

Florida Bio Database: [www.sidmartinbio.org/database](http://www.sidmartinbio.org/database)

Florida Biotech News: [www.floridabiotechnews.com](http://www.floridabiotechnews.com)

LST-HUB Palm Beach County: <http://lsthub.org/events/lst-hub-palm-beach-gardens/>

Max Planck Florida Institute for Neuroscience: <https://www.maxplanckflorida.org/>

Monster.com: [www.jobsearch.monster.com/](http://www.jobsearch.monster.com/)

National Institutes of Health, NIH: <https://www.nih.gov/>

National Center for Biotechnology Information: [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)

National Science Foundation, NSF: [www.nsf.gov](http://www.nsf.gov)

Palm Beach County Life Sciences Companies: <http://www.lifehelix.org/asset-map/palm-beach-county-life-sciences-companies/>

Salary.com: [www.salary.com](http://www.salary.com)

Scripps Research Institute, Florida: <https://www.scripps.edu/florida/>

South Florida Science Center and Aquarium: <https://www.sfsciencecenter.org/>

The Lab Rat.com: [www.thelabrat.com/](http://www.thelabrat.com/)

**Note:** some of the best jobs and/or a complete job listing from a company will be found on the company's website under tabs such as "Careers," "Jobs," etc.