BIOTECHNOLOGY LABORATORY SCIENCES

Associate in Science Degree (CIP# 1341010100)
Valencia’s Biotechnology Laboratory Sciences program will prepare you for one of the hottest emerging career fields today. Biotechnology is using the latest developments in genetics and molecular biology to create useful products for medicine, food, agriculture and alternative energy sources. Biotechnology technicians assist in conducting the laboratory tests, experiments and research that lead to these innovations.

Through Valencia’s program, you’ll learn the fundamentals of biotechnology while gaining hands-on experience through lab work and internship experience. The program emphasizes broad biology and chemistry concepts, basic microbiology, algebraic and statistical analysis, biohazard and safety procedures and core biotechnical laboratory techniques. College-level math is required.

Students are strongly encouraged to consult a career program advisor in the department office for assistance in determining the best education plan for their career goals.

Although scheduling may not always provide for the following progression of courses, students should use the foundation, intermediate and advanced course sequence as a guide in program planning.

All degree-seeking students must satisfy entry testing requirements and satisfactorily complete all mandatory courses in reading, student success, mathematics, English, and English for Academic Purposes in which the student is placed.

Alternative Ways to Earn Credit
Graduates of specific programs at Orange County Technical Colleges and TECO may be eligible to receive college credit for specific courses in this program. For more information and requirements, go to http://valenciacollege.edu/asdegrees/transferagreements.cfm to view the award of credit options. Eligible students should contact the related academic department and/or Career Program Advisor at Valencia for the award of credit.

Start Right
Degree-seeking students enrolling at Valencia for the first time will have a limited range of courses from which to choose for their first 18 college-level credits. Within the first 18 college credit hours, you will be required to take ENC1101 (3 credits), and if applicable, SLS 1122 (3 credits) and a mathematics course appropriate to your selected major (3 credits). The remaining courses will be chosen from the General Education Core Courses in humanities (3 credits), science (3 credits), or social science (3 credits), and/or the introductory courses within the A.S. degree programs. For specific courses see the Foundation Courses on the “Program Requirements” tab. For course sequencing recommendations, see your Career Program Advisor or create an education plan by logging into Atlas, clicking on the LifeMap tab and clicking My Education Plan.

Salary & Earnings Information
For salary and wage information, visit: www.floridawages.com (http://www.floridawages.com).

Potential Careers
- Biotechnology Technician
- DNA Finger printer
- Cell Culture Technician
- Quality Control Technician
- Research Assistant
- Bio-Manufacturing Assistant
- Laboratory Technician

Contacts
Future Students
Contact Enrollment Services at enrollment@valenciacollege.edu or call 407-582-1507.

Current Students
To apply to the program or learn more, contact the Lake Nona Campus Advisor below or visit valenciacollege.edu/biotechnology (http://valenciacollege.edu/biotechnology).

Sarah Ashby, Career Program Advisor, Lake Nona Campus: 407-582-7532
sashby4@valenciacollege.edu (mgonzalez10@valenciacollege.edu)

Internship and Workforce Services
If you need assistance with job resources or in locating an internship, please visit: valenciacollege.edu/internship (http://valenciacollege.edu/internship).

Program Outcomes
- Students will demonstrate knowledge of the field of biotechnology.
- Students will demonstrate a working knowledge of chemistry and cell biology, as required for biotechnology.
- Students will be able to perform techniques relevant to biotechnology.
- Students will understand the biochemical properties of DNA, RNA and describe the PCR steps
- Students will demonstrate an understanding of the importance of following lab safety and proper lab documentation.

Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENC 1101</td>
<td>FRESHMAN COMPOSITION I (GR) **~</td>
<td>3</td>
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<tr>
<td>BSC 1010C</td>
<td>GENERAL BIOLOGY I **~</td>
<td>4</td>
</tr>
<tr>
<td>SLS 1122</td>
<td>NEW STUDENT EXPERIENCE ~</td>
<td>3</td>
</tr>
<tr>
<td>SPC 1608</td>
<td>FUNDAMENTALS OF SPEECH ~</td>
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</tr>
<tr>
<td>CHM 1045C</td>
<td>GENERAL CHEMISTRY WITH QUALITATIVE ANALYSIS **~</td>
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Intermediate Courses

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<tbody>
<tr>
<td>ENC 1102</td>
<td>FRESHMAN COMPOSITION II (GR) **~</td>
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<tr>
<td>CHM 1046C</td>
<td>GENERAL CHEMISTRY WITH QUALITATIVE ANALYSIS II **~</td>
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<tr>
<td>MCB 2010C</td>
<td>MICROBIOLOGY **~</td>
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</tr>
<tr>
<td>Select either</td>
<td>Humanities or Social Science (GR) **~</td>
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</tr>
<tr>
<td>PHI 2010</td>
<td>PHILOSOPHY ~</td>
<td>3</td>
</tr>
<tr>
<td>MAC 1105</td>
<td>COLLEGE ALGEBRA (GR) **~</td>
<td>3</td>
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<tr>
<td>BSC 1421C</td>
<td>INTRODUCTION TO BIOTECHNOLOGY ~</td>
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Advanced Courses

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BSC 2426C</td>
<td>BIOTECHNOLOGY METHODS I **</td>
<td>4</td>
</tr>
<tr>
<td>BSC 2427C</td>
<td>BIOTECHNOLOGY METHODS II **</td>
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</tr>
</tbody>
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Biotechnology Laboratory Sciences

BSC 2423C  PROTEIN BIOTECHNOLOGY AND CELL CULTURE  **  4
STA 2023  STATISTICAL METHODS (GR)  *~  3
PSY 2012  GENERAL PSYCHOLOGY  ~  3
BSC 2941  INTERNSHIP EXPLORATION IN BIOLOGY  *  2

Total Credit Hours  61

+  This course must be completed with a grade of C or better.
*  This course has a prerequisite; check description in Valencia catalog.
~  This is a general education course.

This certificate is designed to equip students with the foundational knowledge and skills that will prepare them for entry-level jobs and career advancement in the Biotechnology field. Areas of focus include biology and chemistry concepts, statistical analysis, laboratory techniques and concepts, laboratory documentation procedures, and biohazard and safety procedures.

Program Outcomes
- Students will demonstrate knowledge of the field of biotechnology.
- Students will demonstrate a working knowledge of chemistry and cell biology, as required for biotechnology.
- Students will be able to perform techniques relevant to biotechnology.
- Students will understand the biochemical properties of DNA, RNA and describe the PCR steps.
- Students will demonstrate an understanding of the importance of following lab safety and proper lab documentation.

Biotechnology Laboratory Specialist

BSC 1010C  GENERAL BIOLOGY I  *~  4
BSC 1421C  INTRODUCTION TO BIOTECHNOLOGY  **~  4
MAC 1105  College Algebra  **~  3
CHM 1045C  GENERAL CHEMISTRY WITH QUALITATIVE ANALYSIS  **~  4
BSC 2426C  BIOTECHNOLOGY METHODS I  **  4
BSC 2427C  BIOTECHNOLOGY METHODS II  **  4
BSC 2423C  PROTEIN BIOTECHNOLOGY AND CELL CULTURE  **  4
STA 2023  Statistical Methods  **~  3

Total Credit Hours  30

+  This course must be completed with a grade of C or better.
*  This course has a prerequisite; check description in Valencia catalog.
~  This is a general education course.