

Annual  
Program  
Of  
Biology  
For  
2020-2021

Prepared by  
Dr. Thomas Weaver

11/10/2020



**Independence**  
COMMUNITY COLLEGE

## Table of Contents

1.0 Program Data and Resource Repository.....	2
1.2 Quantitative and Qualitative Data.....	2
Narrative: .....	2
3.0 Assessment of Student Learning Outcomes .....	5
3.2 Significant Assessment Findings .....	5
Narrative: .....	<b>Error! Bookmark not defined.</b>
4.0 External Constituency and Significant Trends .....	0
4.1: Program Advisory Committee: .....	0
Narrative: .....	0
4.2: Specialized Accreditation:.....	0
Narrative: .....	0
4.3: Other:.....	0
Narrative: .....	0
5.0 Curriculum Reflection .....	1
Narrative: .....	1
5.2 Degree and Certificate Offerings or Support.....	2
Narrative: .....	2
8.0 Fiscal Resource Requests/Adjustments.....	3
8.1 Budget Requests/Adjustments .....	3
Narrative: .....	3
9.0 Program Planning and Development Participation .....	6
9.1 Faculty and Staff .....	6
Narrative: .....	6
9.2 VPAA and/or Administrative Designee Response .....	6
Narrative: .....	6
10.0 Appendices .....	7

## 1.0 Program Data and Resource Repository

### 1.2 Quantitative and Qualitative Data

All programs are provided with the most recent two years of data by the Office of Institutional Research (IR) as well as two-year budget data provided by the Business Office.

The data sets provided by the Office of Institutional Research include the following elements for the most recent two (completed) academic years:

- Number of Faculty (Full Time; Part Time; Total)
- Student Credit Hours by Faculty Type
- Enrollment by Faculty Type
- Faculty Name by Type
- Average Class Size, Completion, and Attrition
- Course Completion, Success and Attrition by Distance Learning v Face-to-Face
- Number of Degrees/Certificates Awarded
- Number of Graduates Transferring (if available from IR)
- Number of Graduates Working in Related Field (technical programs only)
- Expenditures and Revenues

Additional data may also be available for reporting from the Office of Institutional Research, as applicable. Requests for additional data must be made through a data request.

*(See Section 1.2 in the Program Review Handbook for more information.)*

#### Narrative:

The Biology program at Independence Community College offers introductory courses in Biology, including General Biology for non-majors, Biology I, Biology II, Anatomy and Physiology, and Microbiology as well as electives such as Nutrition and Medical Terminology. These courses provide an excellent foundation for students to continue their education in any biological field at a four year college or in a health-related program.

The courses in biology at ICC are taught by two full time faculty members. The two full time faculty members have diverse specializations from molecular and organismal biology to medical and health care that complement the course offerings. All courses in the Biological Sciences at ICC have a maximum of 24 students, allowing students to receive individualized attention, ample opportunities for active class participation, and accurate advisement.

Studying Biology increases an understanding and appreciation of living organisms and their interactions with the environment and each other. In addition, studying Biology creates scientific thinking, reasoning, and problem solving skills.

A career in Biology can be very exciting and rewarding. Biologists work in fields such as health care, research, environmental management and conservation, physician, veterinarian, pharmacist, physical therapy, education, molecular biology, genetics, marine biology, biotechnology, pharmaceuticals, forensic science, museums, zoologist, aquariums, parks, nature centers, scientific writing, medical laboratory technology and illustrations. With recent advances in science and medical research, many more doors and avenues are opening for students with degrees in Biology.

The two year associate degree in Biology at Independence Community College is designed as a transfer program for completion at a four year institution or for completion in a health-related program.

For detailed information about careers in Biology, please visit <http://albs.org/careers/biology>.

**Biology Program Review Data**  
**AY 2020**

**Number of Faculty:**

Full time 2 (Weaver, Chaplin)

Part time 1 (Lal)

**Enrollment & Student credit hours by Faculty type:**

Full time: 46 total credit hours taught, with 124 total students enrolled

Part time: 3 credit hours taught, 6 total students enrolled

**Average Class size:**

11.4 students in Face-to-Face classes

13.0 students in online classes

11.8 students across all courses

**Completion rates:**

82.4% face-to-face

79.5% online

81.5% all courses

**Pass ('D' or better) rates:**

100% face-to-face

93.5% online

98.1% all courses

**Pass ('C' or better) rates:**

90.7% face-to-face

83.9% online

88.7% all courses

**Number of Majors:**

12 (2 returned in Fall 2019)

**Degrees Awarded:**

0 Degree awarded

**Non-Majors Course Data**

Gen Bio Only Data:

**Average Class size:**

19.9 students in Face-to-Face classes

18.3 students in online classes

19.5 students across all courses

**Completion rates:**

90.6% face-to-face

76.4% online

86.9% all courses

**Pass ('D' or better) rates:**

97.9% face-to-face

73.8% online

92.5% all courses

**Pass ('C' or better) rates:**

84.7% face-to-face

61.9% online  
79.6% all courses

\*In response to student demand for courses and to create a variety of courses for students to choose, the Biology department is changing the Biology program to include pre-nursing and pre-medical programs. This will include adding two new courses. These courses will be Anatomy and Physiology II and Environmental Biology (a course previously offered by ICC).

## 3.0 Assessment of Student Learning Outcomes

### 3.2 Significant Assessment Findings

The program faculty should provide a narrative overview of the program's significant student learning outcomes assessment findings, any associated impact on curriculum, as well as any ongoing assessment plans. The program may attach data charts, assessment reports or other relevant materials. *(See Section 3.2 in the Program Review Handbook for more information.)*

#### Narrative:

The assessment for the Biology program took part in the new assessment format created by the ICC assessment committee. The template included a summary table, the outcome, whether outcome was met, findings, further action, strengths of course, weaknesses of course, measures used, measure target goal, and measure results. Assessment templates were completed for the Biology department courses by the instructors for all courses except for the Nutrition course taught by adjunct instructor Dr. Archana Lal's during the summer 2018 as these templates were not available at that time.

Target success for a learning outcome is that 70% of the students will achieve a 70% on a measure corresponding to the learning outcome. Learning outcomes are considered "Met" if the average score for a learning outcome is at 70% or higher. Outcomes are "Partially Met" if scored in the 55-69% range, and "Not Met" for outcomes less than 55%. The range for Partially Met is scored to match current trends in the number of students who obtain a grade of "C" or higher.

The following is the summary table for the Biology program's courses assessed:

Assessment Report for **Biology I: Principles of Cellular and Molecular Biology/ BIO 1115**

Term: Fall 2018

Summary Table

Learning Outcome	Met/ Partially Met/ Not Met	Summary of Future Planned Action(s)
1. Demonstrate an understanding of the nature of science.	Met	None
2. Demonstrate an understanding of the levels of organization and emergent properties of life.	Met	<ul style="list-style-type: none"> <li>• Allocate more lecture time to biochemistry</li> <li>• Increase frequency of student assessment</li> </ul>
3. Demonstrate an understanding of bioenergetics.	Partially Met	<ul style="list-style-type: none"> <li>• Provide worksheets to supplement learning</li> <li>• Increase frequency of student assessment</li> </ul>
4. Demonstrate an understanding of cellular reproduction.	Partially Met	<ul style="list-style-type: none"> <li>• Allocate more lecture time to discussing binary fission</li> </ul>
5. Identify the basic principles of Mendelian and molecular genetics, and relate these to the basic principles of Natural Selection and evolution.	Partially Met	<ul style="list-style-type: none"> <li>• Revise assignments to focus on core concepts of outcome</li> </ul>
6. Design and perform experiments in a laboratory setting.	Met	None

Assessment Report for **Nutrition/ BIO 2053**

Term: Fall 2018

Summary Table

Learning Outcome	Met/ Partially Met/ Not Met	Summary of Future Planned Action(s)
1. Identify the six classes of nutrients and their sources.	Met	none
2. Demonstrate an understanding of the processes of digestion, absorption, and metabolism of nutrients.	Met	none
3. Employ available resources to make sound nutritional choices.	Met	Addition of an online dietary analysis tool.
4. Explain energy balance and weight control as it relates to nutrition and wellness.	Met	none
5. Describe nutritional needs throughout the lifespan.	Met	none
6. Recognize global food safety, security, and sustainability issues.	Met	none

Assessment Report for **Biology I: Principles of Cellular and  
Molecular Biology/ BIO 1115**

Term: Spring 2019

Summary Table

Learning Outcome	Met/ Partially Met/ Not Met	Summary of Future Planned Action(s)
1. Demonstrate an understanding of the nature of science.	Not Met	<u>More in-class</u> , directed development of laboratory reports will be provided. Students will be directly tested over their understanding of scientific processes.
2. Demonstrate an understanding of the levels of organization and emergent properties of life.	Partially Met	More active learning opportunities will be given in future sections
3. Demonstrate an understanding of bioenergetics.	Not Met	More active learning opportunities will be given in future sections.
4. Demonstrate an understanding of cellular reproduction.	Partially Met	<ul style="list-style-type: none"> <li>• Allocate more lecture time to discussing binary fission</li> </ul>
5. Identify the basic principles of Mendelian and molecular <u>genetics, and</u> relate these to the basic principles of Natural Selection and evolution. <ul style="list-style-type: none"> <li>○</li> </ul>	Partially Met	<ul style="list-style-type: none"> <li>• Revise assignments to focus on core concepts of outcome</li> </ul>
6. Design and perform experiments in a laboratory setting.	Met	None

## Assessment Report for Microbiology/BIO2055

Term: Spring 2019

Summary Table

Learning Outcome	Met/ Partially Met/ Not Met	Summary of Future Planned Action(s)
1. Microbial Cell Biology	Met	Devote more class time to understanding of cell structure/ function
2. Microbial Genetics	Partially Met	Focus on fundamentals of genetics.
3. Interactions and Impact of Microorganisms on Humans	Met	Split testing over material into 2 exams
4. Interactions and Impacts of Microorganisms in the Environment	Met	Create a section on bioremediation as time permits.
5. Integrating Themes	Partially Met	Develop resources for teaching to this outcome.
6. Laboratory Skills	Met	None

### Assessment Report for A & P

Term: Spring 2019

Outcomes Met/ Partially Met/ Not Met	Measure type & target goal	Summary of Future Planned Action(s)	Findings and Further actions
Outcomes met: 1,2	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Outcomes met: 1	Direct measure, Same	None	Students responded well to this measure
Outcomes met: 1	Direct measure, same	None	Students responded well to this measure
Outcomes met: 2	Direct measure, same	None	Students responded well to this measure
Outcomes met: 2, 3	Direct measure, same	None	Students responded well to this measure
Outcomes met: 4, 5	Direct measure, same	None	Students responded well to this measure
Outcomes met: 1,2, 3, 4, 5	Direct measure, same	None	Students responded well to this measure
Outcomes met: 3	Direct measure, same	None	Students responded well to this measure
Outcomes met: 4	Direct measure, same	None	Students responded well to this measure
Outcomes met: 5	Direct measure,	None	Students responded well to this measure

### Assessment Report for *Biology II*

Term: Spring 2019

Summary Table

Learning Measures	Outcomes Met/ Partially Met/ Not Met	Measure type & target goal	Summary of Future Planned Action(s)	Findings and Further actions
Test 1	Outcomes met: 1,2,3	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Lab: Phylogenic tree	Outcomes met: 1,2	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Lab microscope	Outcomes met: 5a, 5b	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
lab Evolution	Outcomes met: 1, 5a, 5b, 5c	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Test 2	Outcomes met: 2, 3,4	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Animal Behavior worksheet	Outcomes met: 3,4,5	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Final exam	Outcomes met: 1,2,3,4,5a,b,c	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure

Assessment Report for **Nutrition** Online  
Term: Spring 2019

Summary Table

Learning Measures	Outcomes Met/ Partially Met/ Not Met	Measure type & target goal	Summary of Future Planned Action(s)	Findings and Further actions
Chapter Tests 1-13,15 & 16	Outcomes: 1-6  Outcome met	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure
Chapter assignments 1-13, 15 & 16	Outcomes: 1  Outcome met	Direct measure, 1. 70% of students achieve at least 70% 2. Every student participates in the lab and at least 70% on the lab assignment.	None	Students responded well to this measure

## 4.0 External Constituency and Significant Trends

An important component of maintaining a superior program lies in awareness and understanding of other possible factors that may impact the program and/or student outcomes. After consideration of these other factors, program faculty should document the relevant information within this section. As applicable, this should include the following.

### 4.1: Program Advisory Committee:

Narrative: There is no committee that serves as an advisory to the department

- Include Advisory Member Name/ Title/ Organization/ Length of Service on
- Include Accrediting Agency title, abbreviation, ICC contact; Agency contact, Date of Last Visit, Reaffirmation, Next Visit, FY Projected Accreditation Budget.
- Upload the most recent self-study and site visit documents.
- Upload agency correspondence which confirm accreditation status.

### 4.2: Specialized Accreditation:

Narrative: The Biology program does not have any specialized accreditation.

### 4.3: Other:

Discuss any external constituencies that may apply to the program. *(See Section 4.3 in the Program Review Handbook for more information.)*

Narrative:

Higher Learning Commission HLC's Category One: Helping students learn focuses on the design, deployment, and effectiveness of teaching-learning process that underlie the institution's credit and non-credit programs and courses.

Kansas Board of Regents

Transfer and Articulation Agreement for the following courses:

- General Biology
- Biology I
- Biology II
- A&P
- Microbiology
- Nutrition
- Medical Terminology
- Environmental Science
- Chemistry I
- Chemistry II

## 5.0 Curriculum Reflection

### 5.1 Reflection on Current Curriculum

The program faculty should provide a narrative reflection that describes the program's curriculum holistically. The following are prompts formulated to guide thinking/reflection on curriculum. While presented in question form, the intent of the prompts is to stimulate thought and it is not expected that programs specifically answer each and every question.

- Is the curriculum of the program appropriate to the breadth, depth, and level of the discipline?
- How does this program transfer to four-year universities? (give specific examples)
- What types of jobs can students get after being in your program? (Please use state and national data)
- How dynamic is the curriculum? When was the last reform or overhaul?
- In the wake of globalization, how "internationalized" is the curriculum?
- How does the program assess diversity?
- Does the program have any community-based learning components in the curriculum?

#### Narrative:

An associate degree in Biology requires a completed application, completion of 64 credit hours, including the fulfillment of all program and degree requirements, and a cumulative GPA of 2.0 or better.

The Associates of Science Degree in Biology is intended to enable students to satisfy equivalent lower-division college credit course requirements and to transfer, with advanced standing, into comparable Bachelor of Science Degree programs at Kansas Regents universities or to enter a healthcare program at another college or university.

Courses are organized and structured to interconnect accumulative knowledge with growing proficiencies within each course for an overall informative experience of the program.

Courses are modified across outcomes whether through assessment, interaction with transfer institution, or knowledge of the profession.

The Biology program, with collaboration and guidance from KBOR, adapts and modifies the educational needs of the community it serves.

## 5.2 Degree and Certificate Offerings or Support

Program faculty should list what degrees and certificates are offered and/or describe how the program curriculum supports other degrees and/or certificates awarded by the college.

Narrative:

### **General Degree and Graduation Requirements for the associate of Science degree in Biology:**

The Associate of science Degree is awarded upon satisfactory completion of a planned program of not less than sixty-four (64) college credit hours and a cumulative grade point average of 2.0 including the following distribution of credits:

### **Biology Degree: Associate of Science**

<b>Biology</b>	
Degree: Associate of Science	
The Associate of Science Degree in Biology is intended to enable students complete the necessary courses at the freshman and sophomore level in pursuit of Bachelor of Science Degree in the areas of biological sciences.	
<b>Analysis and Oral Communication (9 hours) Credit Hours</b>	
English Composition I (ENG 1003)	3
English Composition II (ENG 1013)	3
Public Speaking or Interpersonal Communication (COM 1203 or COM 1233)	3
<b>Mathematics (3-5 hours) Credit Hours</b>	
(Select 1)	
College Algebra (MAT1023)	3
Analytical Geometry & Calculus I (MAT 1055)	5
<b>Biological Sciences (20 hours) Credit Hours</b>	
Biology I (BIO1115)	5
Biology II (BIO 2115)	5
Anatomy & Physiology (BIO2045)	5
Microbiology (BIO 2055)	5
<b>Physical Sciences (20 hours) Credit Hours</b>	
Chemistry I for majors (PHS1055)	5
Chemistry II for majors (PHS1065)	5
General College Physics I (PHS1055)	5
General College Physics II (PHS 1065)	5
<b>Cultural Studies (3 hours) Credit Hours</b>	
(Select 1)	
Spanish I, II, III (FRL 1025, 1035, 2035)	5
World History I (HIS1003)	3
World History II (HIS1013)	3
World Regional Geography (SOC2013)	3
Intro to Race and Ethnic Relations (SOC2113)	3
World Religions (REL 1053)	3
<b>Health &amp; Well-Being (3 hours) Credit Hours</b>	
(Select 1)	
General Psychology (BEH1003)	3
Developmental Psychology (BEH2003)	3
Nutrition (BIO 2053)	3
<b>Human Heritage (3 hours) Credit Hours</b>	
(Select 1)	
U.S. History I (HIS1023)	3
U.S. History II (HIS1063)	3
Introduction to Literature (ENG 1073)	3
American Literature I (ENG 1083)	3
American Literature II (ENG 2113)	3
Topics in Literature (ENG 2153)	3
British Literature I (ENG 2123)	3
British Literature II (ENG 2133)	3
Introduction to Philosophy (PHI 2003)	3
Ethics (PHI 1073)	3
Logical & Classical Reasoning (PHI 2073)	3
New Testament Theory (REL 1013)	3
World Religions (REL 1053)	3
<b>Total: 61-63</b>	

## 8.0 Fiscal Resource Requests/Adjustments

### 8.1 Budget Requests/Adjustments

Based on program data review, planning and development for student success, program faculty will complete and attach the budget worksheets to identify proposed resource needs and adjustments. These worksheets will be available through request from the college's Chief Financial Officer. Program faculty should explicitly state their needs/desires along with the financial amount required.

Programs should include some or all of the following, as applicable, in their annual budget proposals:

- Budget Projections (personnel and operation)
- Position Change Requests
- Educational Technology Support
- Instructional Technology Requests
- Facilities/Remodeling Requests
- Capital Equipment
  
- Non-Capital Furniture & Equipment
- New Capital Furniture & Equipment
- Replacement Capital Furniture & Equipment
  
- Other, as applicable
  
- Accreditation Fee Request
  
- Membership Fee Request
- Coordinating Reports

Resource requests should follow budgeting guidelines as approved by the Board of Trustees for each fiscal year. The resource requests should be used to provide summary and detailed information to the division Dean and other decision-makers and to inform financial decisions made throughout the year.

#### Narrative:

The following is the Biology program's budget for 2018-2019.

\*Please note that instructional supplies and repairs were not spent throughout the semester as the department underwent complete new faculty for the department. Therefore, there was no faculty for the department designated to complete purchasing or control the budget.

INDEPENDENCE COMMUNITY COLLEGE						
Biology						
For the Twelve Months Ending Sunday, June 30, 2019						
		Published Budget	Operating Budget	Expense	Encumbered	Remaining
	<b>Fund 11</b>					
	<b>Expenses</b>					
11-510:550	Salary	\$99,200.00	\$106,075.00	\$72,320.79		\$33,754.21
11-591:596	Fringe Benefits	37,925.00	38,451.00	18,414.02		20,036.98
11-648:649	Repairs	4,500.00	4,500.00			4,500.00
11-700:700	Instructional Supplies	7,000.00	7,000.00	2,026.88	550.56	4,422.56
	<b>Total</b>	<b>148,625.00</b>	<b>156,026.00</b>	<b>92,761.69</b>	<b>550.56</b>	<b>62,713.75</b>

The following items were submitted through the zero-based budgeting process for FY19 for the college. A summary of those items include:

1. \$7000.00 - Instructional Supplies: lecture and lab supplies including two new courses added to the department.
2. \$4500- Repairs: microscopes, UV-lamps, etc. Need repairs.
3. \$3500 -Professional Development: The BOT desires academic excellence and faculty being engaged in professional development activities.
4. \$1500-Professional Development (Travel): Same reason as #3.

The following is the actual allotted budget and a summary of the expenses as of 12/11/2019, according to the business office records.

\*Please note that the Biology departments records, at this time, do not equate with the following records. The Biology departments records for instructional supplies and repairs are significantly higher than the following summary.

INDEPENDENCE COMMUNITY COLLEGE						
Biology						
For the Six Months Ending Tuesday, December 31, 2019						
		Published Budget	Operating Budget	Expense	Encumbered	Remaining
	<b>Fund 11</b>					
	<b>Expenses</b>					
11-510:550	Salary	\$99,200.00	\$102,600.00	\$47,422.48		\$55,177.52
11-591:596	Fringe Benefits	38,933.00	39,193.00	15,303.04		23,889.96
11-601:601	Travel	1,500.00	1,500.00			1,500.00
11-648:649	Repairs	2,500.00	2,500.00	38.95		2,461.05
11-700:700	Instructional Supplies	4,000.00	4,000.00	337.78		3,662.22
11-717:718	ProfessionalDevelopment	3,500.00	3,500.00			3,500.00
	<b>Total</b>	<b>149,633.00</b>	<b>153,293.00</b>	<b>63,102.25</b>		<b>90,190.75</b>

Summary: The amount allocated for the 2017-2018 Biology department was equal to the amount allocated for the 2018-2019 year. However, the amounts for 2017-2018 year were distributed as repairs and as instructional supplies where the amounts for 2018-2019 years were distributed as repairs, instructional supplies, professional development, and travel. The Biology department was grateful for the extra accounts, however this has made current spending difficult during the 2019-2020 year because priority for spending is in supplies and repairs, therefore there is not enough allocated to these accounts as this money has been distributed to professional development.



## 9.0 Program Planning and Development Participation

### 9.1 Faculty and Staff

Program faculty will provide a brief narrative of how faculty and staff participated in the program review, planning and development process. List the preparer(s) by name(s).

#### Narrative:

The Biology faculty members contributed towards the program annual review by recording their assessment data as part of the AY18-19 Annual Program Review. Anita Chappuie (Director of institutional Research) provided end of year academic data. Dr. Thomas Weaver prepared this Annual Program Review for the aforementioned academic years for the ICC Biology Department.

### 9.2 VPAA and/or Administrative Designee Response

After review and reflection of the *Comprehensive Program Review* or the *Annual Program Review*, the Division Chair and VPAA will write a summary of their response to the evidence provided. The Division Chair and VPAA's response will be available to programs for review and discussion prior to beginning the next annual planning and development cycle.

#### Narrative:

After reviewing the Annual Program Review for Biology prepared by Dr. Thomas Weaver I agree with the findings. ICC should maintain the status of this program. Mark Allen, VPAA, 3/9/2021.

## 10.0 Appendices

Any additional information that the programs would like to provide may be included in this section.