

Beech tree (Fagus grandiflora) leaves on GCC campus Photo: S. Jenkins



## BIOLOGY FALL 2020

### Greetings,

The Biology Department warmly welcomes you as you visit Grove City College today. We are very excited that you want to find out what our Biology program has to offer!

It is our goal that your study of Biology at GCC will connect you with your world and your future.

- Our program is designed to connect you with your professional goals. Whether graduate study, health professions careers, secondary education, or other employment, our graduates are highly sought after as people who are exceptionally motivated workers and are competent in their academic field.
- Our curriculum **connects you with the science of biology**. We incorporate current biological topics and the latest technologies through lectures, seminars, laboratories, independent research projects, and internships. We continually review the curriculum to keep up to date with developments in the various sub-disciplines of biology. Many of our majors conduct research under the guidance of our faculty, and the research topics reflect the interests and expertise of our faculty.
- Our faculty approach their jobs with the intention of **connecting you with a worshipful study of living things**. We each have a vision of biology informed by a personal relationship with our Creator God through His Son Jesus Christ. Whatever the organism or process, and whether in the classroom, lab, or field, we know from Scripture that the focus of our study tells of its Creator. We view ourselves as privileged to honor God as we study and discover more of Him through His creation.

Please see the following pages in this brochure to learn more about who we are and what we do. You will find sections devoted to:

- 1. Brief faculty profiles
- 2. Our department's mission statement, and a brief overview of how we fulfill our mission.
- 3. Status sheets: details in condensed form of our five degree programs.

We also encourage you to visit our Facebook page (use a QR reader app on your smartphone to scan the QR code below), and to always feel welcome to call or email any of us directly with questions you may have. We hope you find the information presented today useful as you continue your college search.

Sincerely,

The Grove City College Biology Department

 $\frac{http://www.gcc.edu/Home/Academics/Majors-Departments/Science-Engineering-Mathematics/Biology}{}$ 

Visit our FaceBook page!



Below are brief profiles of the full-time **Biology faculty**. You can find out more about us, including contact information, at our Department's website: <a href="http://www.gcc.edu/Home/Academics/Majors-Departments/Science-Engineering-Mathematics/Biology">http://www.gcc.edu/Home/Academics/Majors-Departments/Science-Engineering-Mathematics/Biology</a>



**Lisa M. Antoszewski**, Ph. D., is in her 7th year of teaching at Grove City College. She teaches Genetics, Developmental Biology, Biology of Cancer, Biology Seminar, Contemporary Topics in Biology, Life Science, and a variety of labs for other courses. Dr. Antoszewski's research projects investigate the development of the kidney in the zebrafish, *Danio rerio*.





Jan Frederic Dudt, Ph.D., teaches General Biology II, Plant Taxonomy, Evolutionary Biology, and Studies in Science, Faith and Technology (a college-wide required course). Dr. Dudt has carried out research on the American chestnut tree, and on the efficacious qualities of phytochemicals. Dr. Dudt also explores the interface of science and Christianity, viewing the implications of science from a perspective that gives high regard to Christian Biblical insights.





**Dr. Tracy Farone**, DVM teaches Anatomy, Physiology, Introduction to Pathology, Introduction to Biology Health, Histology, Zoonotic Disease & Public Health, and The Biology of Diving (she is a master SCUBA diver). She is currently developing a research project involving an oncampus apiary garden focusing on honey bee and pollinator health. She also participates in pre-health advising and organizes a travel course to the Crow Indian Reservation, which focuses on student-led public health projects.



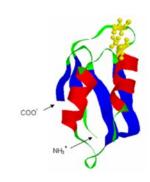


**Stephen P. Jenkins**, Ph.D., in his 29<sup>th</sup> year at Grove City College, teaches Entomology, Invertebrate Zoology, Environmental Science, and a variety of other classes and labs. His introduction to biology as a child was through insects, and today he has research programs investigating the behavior of slave-making ants and their host species.



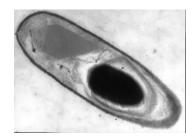


**Kristina O. Pazehoski**, Ph. D., is in her 10<sup>th</sup> year at Grove City College. She teaches General Biology I, Cell Biology, Biochemistry for Biology, and Biology Seminar. Her research projects focus on the roles that metals and metalloproteins play in biological systems.



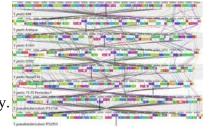


**Devin Stauff**, Ph. D., is in his 10<sup>th</sup> year at Grove City College. He teaches Cell Biology, Microbiology, Immunology, Advanced Genetics, Contemporary Topics in Biology, Biology Seminar, and Life Science. His research is focused on understanding how pathogenic bacteria sense their environment and regulate their behavior accordingly.





**Brian Yowler**, Ph. D., is in his 2<sup>nd</sup> year at Grove City College. He teaches Genetics, Virology, Medical Genetics, Life Science, and Biology Seminar. His current research involves comparative genomics of genes expressed in the venom of parasitoid wasps, as well as genes involved in the insulin-signaling pathway.





**Darren M. Wood**, Ph.D. is in his 1<sup>st</sup> year at Grove City College. He teaches Ecology, Basis of Wildlife Behavior, Conservation and Wildlife Biology, and Fisheries and Aquatic Biology. His research is focused on the movement of both aquatic and terrestrial species across the landscape.





### **BIOLOGY DEPARTMENT MISSION STATEMENT:**

The mission of the Department of Biology is to provide a quality education from a distinctly Christian perspective that will prepare men and women for the 21st century. This perspective has the practical effect of attracting outstanding students and faculty, thus perpetuating a learning climate centered on truth and excellence. The curriculum seeks to develop academic competency and professional awareness, to encourage meaningful interaction between the biological sciences and other dimensions of life, and to promote life-long learning skills in problem solving, research, and communication. Writing-intensive, speaking-intensive, and information literacy skills are developed by special assignments in core and seminar courses.

#### **IMPLEMENTATION:**

In our effort to fulfill our mission, the Biology department currently offers five degree programs:

- Bachelor of Science in Biology (shorthand BIOL) is a general-purpose, well-rounded major designed to expose students to the broad range of sub-disciplines within the field of Biology, yet retain flexibility so that students can plan their course selection to meet their individual needs and desires.
- B.S. in Biology with General Science/Secondary Education Certification (BGSE) is a full BIOL major but with added courses to prepare students for certification to teach at public middle and high schools.
- B.S. in Biology/Health (BIOH) is tailored to students who are seeking careers in medicine or other health fields. The coursework is heavy in preparatory classes to train those interested in becoming doctors, physician assistants, veterinarians, dentists, nurses and other health care professionals.
- B.S. in Conservation Biology (CBIO) is a specialized major for students interested in careers in wildlife and natural resource management, or graduate study in the ecological, environmental, organismal or field sciences.
- B.S. in Molecular Biology (MBIO) is designed for students who want to pursue biotech careers, or who are looking to do research or graduate study in biochemical, molecular, genetic or cellular biology-related fields.

For your convenience, the following pages contain 'Status Sheets' that lay out the requirements (and a four-year suggested course plan) for our five degree programs.

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar. Entering in 2020

# B.S. in Biology

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

Name:								
ID#	"'' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '			Date:				
	nticipated Graduation:			Advisor:				
TOTAL HO	URS REQUIRED FOR THIS DEGREE	<u> </u>	128 HOURS	Minimum CQPA and MQPA required for graduation MQPA Courses				
General Ed	lucation + Elective Requirements		77 HOURS	Major Requi	irements		51	HOURS
	DUCATION REQUIREMENTS			BIOLOGY CO	RE REQUIREMENTS			17 HOURS
		Cr. Sem. Ta	ken Grade			Cr.	Sem. Taken	Grade
HUMANITI	ES CORE		15 HOURS	BIOL 101	General Biology I	4		
HUMA 102	Civ and the Biblical Revelation (IL)*	3		BIOL 102	General Biology II	4		
HUMA 200	Western Civilization			BIOL 233	Genetics	4		
HUMA 202	Civilization and Literature			BIOL 234	Cell Biology	4		
HUMA 301	Civilization and the Arts	3		BIOL 488	Seminar in Biology (WI, SI, IL)	1		
HUMA 303	Christianity and Civilization	3		5101 001 05				40.1101100
*The year	-long sequence of RELI 211 and 212 may substit	ute for this course.			OUP CHOICES			
WDITING	REQUIREMENT		2 HOUDE		rse from <i>each</i> of the following groups, as well as			
WRIT 101	Found. of Academic Discourse (IL)	3	3 HOUKS		redits. Your group course selections must included to the course selections and physical process. The course selections are selections and physical process. The course selections are selections are selections are selections are selections are selections. The course selections are selections.		inree 4-credii iad	courses.
WKII IUI	Found. of Academic Discourse (IL)	s			. 301 Advanced Genetics *	JOLUGI 4		
STUDIES	N SCIENCE, FAITH, & TECHNOLOGY (S	SET)	2 HOLIDS		. 302 Developmental Biology *	4		
	e course from the following:	51 1)	21100113		. 322 The Biology of Cancer*	3		
	/SSFT 205 Ethics, Faith, and the Conscio	us Mind			. 325 Virology *	3	Group 1:	
PHIL 243	Science and the Human: Inquiry, Des				. 334 Biochemistry for Biology	3	Group 1.	
SSFT 210	Science & Religion	ign, a mo i orson			. 346 Human/Mammalian Physiology	4		
SSFT 212	Science, Faith, Technology, & Origins	5			. 407 Microbiology	4		
	3,7,5,5,7	2			/ERTEBRATE SYSTEMS			
				BIOL	310 Zoonotic Disease and Public Health	4		
FOUNDAT	IONS OF THE SOCIAL SCIENCES		3 HOURS	BIOL	. 313 Histology	3		
Choose one	e course from the following:				. 314 Immunology	3	Group 2:	
ECON 120	Foundations of Economics	PSYC 101 Four	ndations of Psychology	BIOL	341 Human/Mammalian Anatomy	4	•	
HIST 120	Foundations of History	PSYC 200 Cros	s-Cultural Psychology	GROUP 3 - N	NATURAL HISTORY			
HIST 141	World Geography	SOCI 101 Foun	dations of Sociology	BIOL	. 305 Plant Taxonomy	4		
HIST 204	Hist/Phil Foundations of Education	SOCI 103 Foun	d. of Cultural Anthr.	BIOL	. 323 Invertebrate Zoology *	3		
POLS 101	Foundations of Political Science	SOCW 101 Fou	nd. of Social Work	BIOL	326 Evolutionary Biology	3	Group 3:	
		_ 3		BIOL	. 409 Entomology *	4		
				GROUP 4 - E	ENVIRONMENTAL AND ECOLOGICAL I	DIVERSITY		
QUANTITA	TIVE/LOGICAL REASONING		3 HOURS		320 Conservation & Wildlife Biology	4		
	Bulletin - General Education section - for requiren				. 331 Ecology	4		
PSYC 201	Statistical Methods is recommended for this req				403 Basis of Wildlife Behavior *	3	Group 4:	
		_ 3			421 Aquatic & Fishery Biology *	3		
NATURAL			0.1101100		L GROUP COURSE		0 51	
	SCIENCES (with labs)		0 HOURS		course from any of the groups above.	3-4	Group Elec:	
	rements met through major-related coursework.				ate years. Schedule accordingly.			
PHYSICAL	EDUCATION		1 HOURS	BIOLOGY EL	ECTIVES			4 HOURS
PHYE 100	Healthful Living	1		Choose four ho	ours from any additional Biology offerings. See the	ne College <i>Bulleti</i>	n for Biology offer	rings not
				listed above. N	ote: Independent or honors research requires a	minimum two-se	mester commitme	ent (one
GENERAL	ELECTIVES		50 HOURS	credit per seme	ester).			
				MAJOR-RELA	ATED REQUIREMENTS			12 HOURS
				CHEM 111/1	13 General Chemistry I/Lab	3+1		
				CHEM 112/1	14 General Chemistry II/Lab	3+1		
				MATH 161	Calculus I	4		

## SAMPLE FOUR-YEAR PLAN for the BACHELOR OF SCIENCE IN BIOLOGY

 $^{\star\star}$  Please note that there is considerable flexibility in semesters 5-8  $^{\star\star}$ 

### Freshman Year

<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 101 General Biology I	4	BIOL 102 General Biology II	4
CHEM 111 General Chemistry I	3	CHEM 112 General Chemistry II	3
CHEM 113 General Chemistry I Lab	1	CHEM 114 General Chemistry II Lab	1
WRIT 101 Foundations of Academic Discourse	3	HUMA 102 Civ and the Biblical Revelation	3
PHYE 100 Healthful Living	1	MATH 161 Calculus I	4
General Electives*	<u>4</u>	General Elective	<u>1</u>
	16		16
* MATH 111 Pre-Calculus may be appropriate for those wishing	to prepare for MAT	TH 161 Calculus I in the spring semester.	
	Soph	nomore Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 233 Genetics	4	BIOL 234 Cell Biology	4
HUMA 200 Western Civilization	3	HUMA 202 Civilization and Literature	3
SSFT Course	2	Quantitative/Logical Reasoning Course (e.g. PSYC 20	)1)3
General Electives	<u>8</u>	General Electives	<u>6</u>
	17		16
	Ju	unior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
Biology Group Course	4	Biology Group Course	4
Biology Elective	1	Biology Elective	1
HUMA 301 Civilization and the Arts	3	HUMA 303 Christianity and Civilization	3
General Electives	<u>8</u>	General Electives	<u>8</u>
	16		16
	Se	enior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
Biology Group Course	3	BIOL 488 Biology Seminar	1
Biology Group Course	4	Biology Group Elective Course	3
Biology Elective	1	Biology Elective	
Foundations of Social Science Course		General Electives	
General Electives	<u>5</u>		15
	16		

Consult with your advisor regarding specific courses and course load per semester.

A total of at least <u>128</u> credits of coursework are required for graduation.

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar.

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

## B.S. in Biology and General Science Secondary Education Certification Entering in 2020

ivame:								
ID#				Date:				
	ticipated Graduation:			Advisor:	_			
TOTAL HOUR	S REQUIRED FOR THIS DEGREE		128 HOURS	Minimum CC	PA and MQPA required for graduation			2.00
				Minimum QF	As required for certification		CQPA 3.00	; MQPA 2.75
				MQPA Cours	ses			BIOL
General Educ	ation + Elective Requirements		27 HOURS	Major Requir	rements			101 HOURS
	CATION REQUIREMENTS			BIOLOGY COR	RE REQUIREMENTS			17 HOURS
		Cr. Sem. Take	en Grade			Cr.	Sem. Taken	Grade
	CORE			BIOL 101	General Biology I			
HUMA 102 HUMA 200	Civ and the Biblical Revelation (IL)* Western Civilization			BIOL 102 BIOL 233	General Biology II Genetics			
HUMA 202	Civilization and Literature	3		BIOL 234	Cell Biology	4		
HUMA 301	Civilization and the Arts	3		BIOL 486	Seminar for Biology Teachers (WI, SI, IL)	1		
HUMA 303 *The year-lo	Christianity and Civilization ong sequence of RELI 211 and 212 may substitu	3 ute for this course		BIOLOGY GRO	OUP CHOICES			18 HOURS
•					urse from each of the following groups, as well as a			
	DUIREMENT				ach a minimum of 18 credits. Your group course se	lections must	include a	
WRIT 101	Foundations of Academic Discourse (IL)	3		minimum of thre	ee 4-credit lab courses.			
STUDIES IN S	CIENCE, FAITH, & TECHNOLOGY (SSFT)		2 HOURS	GROUP 1 - M	OLECULAR MECHANISMS AND PHYSIOLOGY			
	ourse from the following:				301 Advanced Genetics *	4		
PHIL 243	FT 205 Ethics, Faith, and the Conscious Mind Science and the Human: Inquiry, Design, &	the Derson			302 Developmental Biology * 322 The Biology of Cancer*	4 3		
SSFT 210	Science & Religion	the reison			. 325 Virology *	3	Group 1:	
SSFT 212	Science, Faith, Technology, & Origins			BIOL	334 Biochemistry for Biology	3		
		2			346 Human/Mammalian Physiology	4		
		_			407 Microbiology ERTEBRATE SYSTEMS	4		
FOUNDATION	IS OF THE SOCIAL SCIENCES		3 HOURS		310 Zoonotic Disease and Public Health	4		
	ourse from the following:	5000 404 5 1 11	(5		313 Histology	3		
ECON 120 HIST 120	Foundations of Economics Foundations of History	PSYC 101 Foundation PSYC 200 Cross-Cu			314 Immunology 341 Human/Mammalian Anatomy	3	Group 2:	
HIST 141	World Geography	SOCI 101 Foundation			ATURAL HISTORY			
HIST 204	Hist/Phil Foundations of Education	SOCI 103 Found. of			305 Plant Taxonomy	4		
POLS 101	Foundations of Political Science	SOCW 101 Found. o	of Social Work		323 Invertebrate Zoology * 326 Evolutionary Biology	3 3	Croup 2	
		3			409 Entomology *	4	Group 3.	
					NVIRONMENTAL AND ECOLOGICAL DIVERSITY			
	/E/LOGICAL REASONING		3 HOURS		320 Conservation & Wildlife Biology	4 4		
Refer to the Bu	ulletin - General Education section - for requirem	iens.			331 Ecology 403 Basis of Wildlife Behavior *	3	Group 4:	
		3		BIOL	421 Aquatic & Fishery Biology *	3		
NATUDAL CO	IENCES (with labs)				GROUP COURSE	2.4	C	
College require	ements met through major-related coursework		0 HOURS		course from any of the groups above nate years. Schedule accordingly.	3-4	Group Elec:	
					3			
	DUCATION				ECTIVES			
PHYE 100	Healthful Living	1			hours from any additional Biology offerings. See the			
CENEDAL ELL	ECTIVES		U HUIDS	credit per sem	re. Note: Independent or honors research requires a	a minimum tw	o-semester commi	itment (one
GENERAL ELI	ECTIVE3		0 HOURS	credit per sem	ester).			
DDOLLCCION	AL EDUCATION REQUIREMENTS		41 HOURS					
			41 HOURS					
EDUC 202^	Introduction to the Teaching Profession	3						
EDUC 203	Culturally Relevant Pedagogy	3			ATED REQUIREMENTS			22 HOURS
EDUC 204 EDUC 215	Technologies of Instruction Secondary Curriculum & Instruction I	3		ASTR 206 ASTR 207	Intro to Sky Motions/Planets <i>OR</i> Intro to Stars/Galaxies/Cosmology	3		
EDUC 213	Secondary Math/Scic Curriculum & Instruction 1			CHEM 111	General Chemistry I	3		
EDUC 371	Field Experience	1		CHEM 113	General Chemistry I Lab	1		
EDUC 375	Secondary Field Experience (3rd Level)	1		CHEM 112	General Chemistry II	3		
EDUC 431 EDUC 488	Student Teaching Issues in Education/Comparative Education	16 1 3		CHEM 114 GEOL 201	General Chemistry II Lab Physical/Environmental Geology	3		
PSYC 102	Educational Psychology	3		MATH 161	Calculus I	4		
SEDU 102	Exceptional Learners for 7-12 & K-12			SCIC 201	Fundamentals of the Universe <i>OR</i>			
SEDU 103	Methods of Sec. Spec. Educ Implementation	n 2		PHYS 121	College Physics I	4		

 $<sup>^{\</sup>wedge}$  Students with EDUC 205 credit must take EDUC 206 to complete the EDUC 202 requirement

# SAMPLE FOUR-YEAR PLAN for the BACHELOR OF SCIENCE IN BIOLOGY and GENERAL SCIENCE SECONDARY EDUCATION CERTIFICATION

#### Freshman Year

<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 101 General Biology I	4	BIOL 102 General Biology II	4
CHEM 111 General Chemistry I	3	CHEM 112 General Chemistry II	3
CHEM 113 General Chemistry I Lab	1	CHEM 114 General Chemistry II Lab	1
MATH 161 Calculus I		HUMA 102 Civ and the Biblical Revelation	3
WRIT 101 Foundations of Academic Discourse	<u>3</u>	PSYC 102 Educational Psychology	3
	15	PHYE 100 Healthful Living	<u>1</u>
			15
	Soph	omore Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 233 Genetics	4	BIOL 234 Cell Biology	4
EDUC 202 Introduction to the Teaching Profession	3	EDUC 203 Culturally Relevant Pedagogy	3
EDUC 204 Technologies of Instruction	3	EDUC 215 Secondary Curriculum & Instruction	2
HUMA 200 Western Civilization	3	EDUC 371 Field Experience (Secondary)	1
PHYS 121 College Physics I OR		GEOL 201 Physical/Environmental Geology	3
SCIC 201 Fundamentals of the Universe	<u>4</u>	HUMA 202 Civilization and Literature *	<u>3</u>
	17		16
	Ju	nior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
	2	DIOL O	4
ASTR 206 Introduction to Sky Motions and Planets	J	BIOL Group Course	
ASTR 206 Introduction to Sky Motions and Planets BIOL Group Course		BIOL 486 Seminar for Biology Teachers	
	4		1
BIOL Group Course	4 3	BIOL 486 Seminar for Biology Teachers	1 ion II 2
BIOL Group Course	4 3 2	BIOL 486 Seminar for Biology Teachers EDUC 317 Secondary Math/Scic Curriculum & Instruction	1 ion II 2 1
BIOL Group Course	4 3 2 ion. 2	BIOL 486 Seminar for Biology Teachers EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)	1 ion II 2 1 3
BIOL Group Course	4 3 2 ion. 2	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level) Foundations of Social Science Course	
BIOL Group Course	4 3 2 ion. 2 <u>3</u>	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course	4 2 ion. 2 <u>3</u> 17	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course	4 2 ion. 2 <u>3</u> 17	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course  BIOL Group Course  SEDU 102 Exceptional Learners for 7-12 & K-12  SEDU 103 Methods of Sec. Spec. Educ. Implementat HUMA 301 Civilization and the Arts *  Fall  BIOL Group Course	4 2 ion. 2 3 17  Se <u>Credits</u> 4	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course  SEDU 102 Exceptional Learners for 7-12 & K-12  SEDU 103 Methods of Sec. Spec. Educ. Implementat HUMA 301 Civilization and the Arts *  Fall  BIOL Group Course  BIOL Group Course	4 3 2 ion. 2 3 17  Se Credits 4 3	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course  SEDU 102 Exceptional Learners for 7-12 & K-12  SEDU 103 Methods of Sec. Spec. Educ. Implementat HUMA 301 Civilization and the Arts *  Fall  BIOL Group Course  BIOL Group Course  BIOL Elective	4 2 ion. 2 3 17  Se Credits 4 3 3	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course	4 3 2 ion. 2 3 17  Se <u>Credits</u> 4 3 3 3	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	
BIOL Group Course  SEDU 102 Exceptional Learners for 7-12 & K-12  SEDU 103 Methods of Sec. Spec. Educ. Implementat HUMA 301 Civilization and the Arts *  Fall  BIOL Group Course  BIOL Group Course  BIOL Elective	4 3 2 ion. 2 3 17  Se <u>Credits</u> 4 3 3 3	BIOL 486 Seminar for Biology Teachers  EDUC 317 Secondary Math/Scic Curriculum & Instruction EDUC 375 Secondary Field Experience (3rd Level)  Foundations of Social Science Course	

Consult with your advisor regarding specific courses and course load per semester.

The above schedule is a suggested plan only; please note that there is some flexibility in scheduling certain courses. The student must consult with his/her advisor each semester regarding course selection and planning.

<sup>\*</sup> Courses typically offered during January and May Intersessions.

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar. Entering in 2020

# B.S. in Biology / Health

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

Name:				Date:				
Year of Ant	icipated Graduation:			Advisor:				
TOTAL HOU	RS REQUIRED FOR THIS DEGREI	E	128 HOURS	Minimum CC	ΩPA and MQPA required for graduation	n		2.00
					ses			
General Edu	cation + Elective Requirements		54 HOURS	Major Requi	rements		74	HOURS
GENERAL ED	UCATION REQUIREMENTS		21 HOURS	BIOLOGY CO	RE REQUIREMENTS			17 HOURS
		Cr. Sem. Taken	Grade			Cr.	Sem. Taken	Grade
HUMANITIES	S CORE		15 HOURS	BIOL 101	General Biology I	4		
HUMA 102	Civ and the Biblical Revelation (IL)*	3		BIOL 102	General Biology II	4		
HUMA 200	Western Civilization	3		BIOL 233	Genetics	4		
HUMA 202	Civilization and Literature	3		BIOL 234	Cell Biology	4		
HUMA 301	Civilization and the Arts	2		BIOL 488	Seminar in Biology (WI, SI, IL)	1		
HUMA 303	Civ and the Speculative Mind	3						
*The year-	long sequence of RELI 211 and 212 ma	y substitute for this co	urse.	HEALTH GRO	UP 1			15 HOURS
				BIOL 334	Biochemistry for Biology	3		
	QUIREMENT			BIOL 341	Human/Mammalian Anatomy	4		
WRIT 101	Found. of Academic Discourse (IL)	3		BIOL 346	Human/Mammalian Physiology	4		
				BIOL 407	Microbiology	4		
	SCIENCE, FAITH, & TECHNOLOGY (S	SFT)	2 HOURS					
	course from the following:				UP 2: Complete two of the following course:			6-7 HOURS
	SFT 205 Ethics, Faith, and the Conscio			BIOL 310	Zoonotic Disease and Public Health	4		
PHIL 243	Science and the Human: Inquiry, Des	ign, & the Person		BIOL 313	Histology	3		
SSFT 210	Science & Religion			BIOL 314	Immunology	3		
SSFT 212	Science, Faith, Technology, & Origins			BIOL 322	The Biology of Cancer*	3		
		_ 2		BIOL 325	Virology *	3		
FOLINDATIO	NIC OF THE COCIAL COIFNORC		o HOUDE	Опег	red alternate years. Schedule accordingly.			
	INS OF THE SOCIAL SCIENCES		U HOUKS	DIOLOGY ELE	ECTIVES			0.10.1101100
College requi	rements met through major-related cours	sework.						
OHANTITAT	IVE/LOGICAL REASONING		U HUNDS		ten hours from any additional Biology offerings. See			
	irements met through major-related cours		0 HOUKS	credit per seme	. Note: Independent or honors research requires a reter)	nimimum tv	wo-semester commi	itineni (one
College requi	nements met through major-related cours	Sework.		credit per seme:	ster).			
ΝΔΤΙΙΡΔΙ S	CIENCES (with labs)		n HOLIRS	l <del></del>				
	rements met through major-related cours		OHOOKS					
Oolicyc requi	nements met till odgir major related codi.	SCWOIK.						
PHYSICAL E	DUCATION		1 HOURS	-				
PHYE 100	Healthful Living	1		-				
	3							
GENERAL E	LECTIVES		33 HOURS	MAJOR-RELA	TED REQUIREMENTS			26 HOURS
				CHEM 111	General Chemistry I	3		
				CHEM 113	General Chemistry I Lab	1		
				CHEM 112	General Chemistry II	3		
				CHEM 114	General Chemistry II Lab	1		
		_		CHEM 241	Organic Chemistry I **	4		
				MATH 161	Calculus I **	4		
				PHYS 121	College Physics I **	4		
				PSYC 201	Statistical Methods	3		
				Choose one of	course from the following:			
				PSYC 101	, ,,			
				SOCI 101	Foundations of Sociology	3		
					ealth programs may require additional organic chen			S.
				<ul> <li>Review in advar</li> </ul>	ace the prerequisite requirements of the programs the	at interest	t vou	

## SAMPLE FOUR-YEAR PLAN for the BACHELOR OF SCIENCE IN BIOLOGY / HEALTH

 $^{\star\star}$  Please note that there is considerable flexibility in semesters 5-8  $^{\star\star}$ 

	Fres	hman Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 101 General Biology I	4	BIOL 102 General Biology II	4
CHEM 111 General Chemistry I	3	CHEM 112 General Chemistry II	3
CHEM 113 General Chemistry I Lab	1	CHEM 114 General Chemistry II Lab	1
WRIT 101 Foundations of Academic Discourse	3	HUMA 102 Civ and the Biblical Revelation	3
PHYE 100 Healthful Living	1	MATH 161 Calculus I	4
General Electives*	<u>4</u>	General Elective	<u>1</u>
	16		16
* MATH 111 Pre-Calculus may be appropriate for those	wishing to prepare	for MATH 161 Calculus I in the spring semester.	
	Soph	omore Year	
Fall	Credits	Spring	Credits
BIOL 233 Genetics	4	BIOL 234 Cell Biology	4
CHEM 241 Organic Chemistry I	4	HUMA 202 Civilization and Literature	
HUMA 200 Western Civilization		PSYC 201 Statistical Methods	3
SSFT Course	2	General Electives	<u>6</u>
Social Science Course - PSYC 101 or SOCI 101	<u>3</u>		16
	16		
	Ju	nior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 407 Microbiology	4	BIOL 334 Biochemistry for Biology	3
PHYS 121 College Physics I		Health Group 2 Elective	3
HUMA 301 Civilization and the Arts	3	HUMA 303 Christianity and Civilization	
General Electives	<u>5</u>	General Electives	<u>7</u>
	16		16
	Se	nior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	Credits
BIOL 341 Human/Mammalian Anatomy	4	BIOL 346 Human/Mammalian Physiology	4
Health Group 2 Elective	3	BIOL 488 Biology Seminar	1
Biology Elective	3	Biology Elective	3
Biology Elective	4	General Electives	<u>7</u>
General Electives	<u>3</u>		15

Consult with your advisor regarding specific courses and course load per semester.

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A total of at least <u>128</u> credits of coursework are required for graduation.

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar. Entering in 2020

# B.S. in Conservation Biology

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

Name:					Date:				
Year of Anticipated Graduation:				Advisor:	-				
	RS REQUIRED FOR THIS DEGRE	 F		128 HOURS		PA and MQPA required for gradua	ation		2.00
		_				Ses			
General Edu	cation + Elective Requirements			57 HOURS		rements			
<b>-</b>	UCATION REQUIREMENTS					RE REQUIREMENTS			
02.12.11.12.22	557111511 N.2. 2511.2.11.15		Sem. Taken		3.0200.00.			Sem. Taken	Grade
HUMANITIES	S CORE			15 HOURS	BIOL 101	General Biology I	4		
HUMA 102	Civ and the Biblical Revelation (IL)*	3			BIOL 102	General Biology II	4		
HUMA 200	Western Civilization	3			BIOL 233	Genetics	4		
HUMA 202	Civilization and Literature	3			BIOL 234	Cell Biology	4		
HUMA 301	Civilization and the Arts	3			BIOL 488	Seminar in Biology (WI, SI, IL)	1		
HUMA 303	Christianity and Civilization	3	io opuros						
"The year-to	ng sequence of RELI 211 and 212 may substit	tute for th	is course.		CONSEDUATI	ON GROUP 1			15 HOUDS
WDITING DE	QUIREMENT			3 HUIDS	BIOL 305	Plant Taxonomy	4		
WRIT 101	Found. of Academic Discourse (IL)		_		BIOL 320	Conservation & Wildlife Biology	4		
***************************************	r dana. di Academie Biscourse (IE)	J			BIOL 326	Evolutionary Biology	3		
STUDIES IN	SCIENCE, FAITH, & TECHNOLOGY (S	SFT)		2 HOURS	BIOL 331	Ecology	4		
	course from the following:								
COMP 205/S	SFT 205 Ethics, Faith, and the Conscio	us Mind							
PHIL 243	Science and the Human: Inquiry, Des	sign, & tl	he Person		CONSERVATI	ON GROUP 2: Complete three of the foll	owing:		9-10 HOURS
SSFT 210	Science & Religion				BIOL 323	Invertebrate Zoology *	3		
SSFT 212	Science, Faith, Technology, & Origins				BIOL 403	Basis of Wildlife Behavior *	3		
		_ 2			BIOL 409	Entomology *	4		
EOUNDATIO	NS OF THE SOCIAL SCIENCES			3 HOLIDS	BIOL 421	Aquatic & Fishery Biology *	3		
	course from the following:			3 HOUKS	Ollei	red alternate years. Schedule accordingly			
ECON 120	Foundations of Economics	PSYC	` 101 Foundatio	ons of Psychology	BIOLOGY FLE	ECTIVES			13-14 HOURS
HIST 120	Foundations of History			ultural Psychology		to fourteen hours from any additional Biology o			
HIST 141	World Geography			ons of Sociology		s not listed above. Note: Independent or honors			
HIST 204	Hist/Phil Foundations of Education		103 Found. of	0,7		itment (one-credit per semester).	,		
POLS 101	Foundations of Political Science	SOC	N 101 Found.	of Social Work					
		3							
	IVE/LOGICAL REASONING			3 HOURS					
	Illetin - General Education section - for requirer								
PSYC 201 S	Statistical Methods is recommended for this req	luirement							
		3							
		_							
NATURAL S	CIENCES (with labs)			0 HOURS	MAJOR-RELA	TED REQUIREMENTS			16 HOURS
	rements met through major-related cours				CHEM 111	General Chemistry I	3		
					CHEM 113	General Chemistry I Lab	1		
PHYSICAL E	DUCATION				CHEM 112	General Chemistry II	3		
PHYE 100	Healthful Living	1			CHEM 114	General Chemistry II Lab	1		
					MATH 161	Calculus I	4		
GENERAL E	LECTIVES			30 HOURS	SCIC 204	Environmental Science	4		
					1				

## SAMPLE FOUR-YEAR PLAN for the BACHELOR OF SCIENCE IN **CONSERVATION BIOLOGY**

\*\* Please note that there is considerable flexibility in semesters 5-8 \*\*

	Fres	shman Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 101 General Biology I	4	BIOL 102 General Biology II	4
CHEM 111 General Chemistry I	3	CHEM 112 General Chemistry II	3
CHEM 113 General Chemistry I Lab	1	CHEM 114 General Chemistry II Lab	1
WRIT 101 Foundations of Academic Discourse	3	HUMA 102 Civ and the Biblical Revelation	3
PHYE 100 Healthful Living	1	MATH 161 Calculus I	4
General Electives*	<u>4</u>	General Elective	<u>1</u>
	16		16
* MATH 111 Pre-Calculus may be appropriate for those wish	ning to prepare for MAT	H 161 Calculus I in the spring semester.	
	Soph	nomore Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	Credits
BIOL 233 Genetics		BIOL 234 Cell Biology	4
HUMA 200 Western Civilization	3	HUMA 202 Civilization and Literature	
SSFT Course	2	Quantitative/Logical Reasoning Course (e.g. PSYC 2	201) 3
General Electives	8	General Electives	
	17		16
	Ju	nior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 331 Ecology	4	BIOL 320 Conservation / Wildlife Biology	4
Conservation Group 2 Elective	3	BIOL 326 Evolutionary Biology	3
Conservation Group 2 Elective	3	HUMA 303 Christianity and Civilization	3
HUMA 301 Civilization and the Arts	3	SCIC 204 Environmental Science	4
General Electives	<u>3</u>	General Electives	<u>2</u>
	16		16
	Se	nior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 305 Plant Taxonomy	4	BIOL 488 Biology Seminar	1
Conservation Group 2 Elective	3	Biology Electives	8

General Electives......<u>6</u>

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Consult with your advisor regarding specific courses and course load per semester. A total of at least 128 credits of coursework are required for graduation.

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Biology Electives.......6

Foundations of Social Science Course.....3

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar. Entering in 2020

# B.S. in Molecular Biology

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

Name:				Dete				
ID# Year of Anticipated Graduation:				Date:				
	•	_		Advisor:				
TOTAL HOU	RS REQUIRED FOR THIS DEGRE	L	128 HOURS		QPA and MQPA required for grad			
C			EZ LIQUIDO		Ses			
	cation + Elective Requirements				irements			
GENERAL EDU	JCATION REQUIREMENTS		27 HOURS	BIOLOGY COR	RE REQUIREMENTS			17 HOURS
		Cr. Sem. Taken				Cr.	Sem. Taken	Grade
	6 CORE		15 HOURS	BIOL 101	General Biology I	4		
HUMA 102	Civ and the Biblical Revelation (IL)*	3		BIOL 102	General Biology II	4		
HUMA 200	Western Civilization	3		BIOL 233	Genetics	4		
HUMA 202	Civilization and Literature	3		BIOL 234	Cell Biology	4		
HUMA 301 HUMA 303	Civilization and the Arts Christianity and Civilization	3	<del></del>	BIOL 488	Seminar in Biology (WI, SI, IL)	I		-
	long sequence of RELI 211 and 212 may s		<del></del>					
The year-	iong sequence of RELIZIT and Z1Z may s	ubstitute for this course.		MOLECULAR	GROUP 1			12 HOLIDS
WRITING RE	QUIREMENT		3 HOURS	BIOL 301	Advanced Genetics *	Δ		12 HOURS
WRIT 101	Found. of Academic Discourse (IL)	3		BIOL 302	Developmental Biology *	4		
	. 64.14. 6. / 164461116 216664166 (12)			BIOL 407	Microbiology	4	-	-
STUDIES IN S	SCIENCE, FAITH, & TECHNOLOGY (SSF	T)	2 HOURS	5.02 107	·····oroziology			-
	course from the following:	,						
COMP 205/SS	SFT 205 Ethics, Faith, and the Conscious	Mind		MOLECULAR	GROUP 2: Complete one of the following	courses		3 HOURS
PHIL 243	Science and the Human: Inquiry, Desig	n, & the Person		BIOL 314	Immunology	3		
SSFT 210	Science & Religion			BIOL 322	The Biology of Cancer*	3		
SSFT 212	Science, Faith, Technology, & Origins			BIOL 325	Virology *	3		
		2		*Offe	red alternate years. Schedule accordingly.			
	NS OF THE SOCIAL SCIENCES		3 HOURS					
	course from the following:	D0\/0.404 E	(5.1.1		CTIVES			
ECON 120	Foundations of Economics	PSYC 101 Foundati	, ,,		hours from any additional Biology offerings. S	-		-
HIST 120	Foundations of History	PSYC 200 Cross-Cu			ve. Note: Independent or honors research	requires a minim	um two-semeste	er commitment
HIST 141 HIST 204	World Geography Hist/Phil Foundations of Education	SOCI 101 Foundation SOCI 103 Found. of	03	(one-credit per	semester).			
POLS 101	Foundations of Political Science	SOCW 103 Found. of						
POLS IUI	Foundations of Political Science	3	UI SUCIAI WUIK					
		_						
OUANTITATI	VE/LOGICAL REASONING		3 HOURS	-				
	Bulletin - General Education section - for rec							
		1						
		3						
NATURAL SO	CIENCES (with labs)		0 HOURS					
College requir	rements met through major-related coursev	vork.		MAJOR-RELA	TED REQUIREMENTS			28 HOURS
				CHEM 111	General Chemistry I	3		
PHYSICAL E	DUCATION		1 HOURS	CHEM 113	General Chemistry I Lab	1		
PHYE 100	Healthful Living	1		CHEM 112	General Chemistry II	3		
				CHEM 114	General Chemistry II Lab	1		
GENERAL EL	LECTIVES		30 HOURS	CHEM 241	Organic Chemistry I	4		
				CHEM 242	Organic Chemistry II	4		
				CHEM 351	Biochemistry I	4		
				CHEM 352	Biochemistry II	4		
				MATH 161	Calculus I	4		

## SAMPLE FOUR-YEAR PLAN for the BACHELOR OF SCIENCE IN MOLECULAR BIOLOGY

\*\* Please note that there is considerable flexibility in semesters 5-8 \*\*

#### Freshman Year

	Fre	shman Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 101 General Biology I	4	BIOL 102 General Biology II	4
CHEM 111 General Chemistry I	3	CHEM 112 General Chemistry II	3
CHEM 113 General Chemistry I Lab	1	CHEM 114 General Chemistry II Lab	1
WRIT 101 Foundations of Academic Discourse	3	HUMA 102 Civ and the Biblical Revelation	3
PHYE 100 Healthful Living	1	MATH 161 Calculus I	4
General Electives*	<u>4</u>	General Elective	<u>1</u>
	16		16
* MATH 111 Pre-Calculus may be appropriate for those	wishing to prepar	e for MATH 161 Calculus I in the spring semester.	
	Sop	homore Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 233 Genetics	4	BIOL 234 Cell Biology	4
CHEM 241 Organic Chemistry I	4	CHEM 242 Organic Chemistry II	4
HUMA 200 Western Civilization	3	HUMA 202 Civilization and Literature	3
SSFT Course	2	Quantitative/Logical Reasoning course (e.g. PSYC 201)	) <u>3</u>
Foundations of Social Science	<u>3</u>		14
	16		
	Ji	unior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 301 Advanced Genetics	4	BIOL 302 Developmental Biology	4
Molecular Group 2 Elective or Biology Elective	3	Biology Elective or Molecular Group 2 Elective	3
CHEM 351 Biochemistry I	4	CHEM 352 Biochemistry II	4
HUMA 301 Civilization and the Arts	3	HUMA 303 Christianity and Civilization	3
General Electives	<u>2</u>	General Electives	<u>3</u>
	16		17
	S	enior Year	
<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
BIOL 407 Microbiology	4	BIOL 488 Biology Seminar	1
Biology Elective	3	Biology Elective	3
Biology Elective	1	Biology Elective	1
General Electives	9	General Electives	11

Consult with your advisor regarding specific courses and course load per semester.

17

16

A total of at least 128 credits of coursework are required for graduation.



### Early Acceptance, Accelerated & Guaranteed Interview Programs

Grove City College offers guaranteed, early acceptance and/or accelerated programs to several professional schools. The College also has agreements for unlimited professional interviews at various schools dependent upon meeting minimum admission requirements. In addition to these programs, Carnegie Mellon University's H. John Heinz III College offers scholarships support to qualified Grove City College alumni who are accepted into one of their graduate programs.

The College has established relationships with the following professional programs:

### **Early Acceptance**

**Definition:** Students apply early to a professional program and are admitted provided they continue to satisfy specified criteria.

• Lake Erie College of Osteopathic Medicine (LECOM) – Early acceptance for D.O., Dentistry, and Pharmacy

### **Guaranteed Admission**

**Definition:** Students are guaranteed admission if they meet specified criteria.

- Chatham University: Doctor of Physical Therapy, Master of Occupational Therapy, Master of Physician Assistant Studies
- Clarion University: Master of Science in Athletic Training
- **Duquesne University School of Nursing:** Second Degree BSN 3+1 and 4+1 options
- Liberty University: Master of Public Health
- Slippery Rock University: Master of Science in Athletic Training
- University of Pittsburgh School of Nursing: One-Year Accelerated Nursing Degree

#### **Guaranteed Interviews**

**Definition:** Qualified students are guaranteed an interview for admission.

- Liberty University College of Osteopathic Medicine: D.O.
- Mount Union University: Doctor of Physical Therapy
- Campbell University: D.O. (Also reserves two seats yearly for students to attend a freshman mission trip)
- West Virginia University School of Medicine: M.D.

#### **Guaranteed Consideration**

• **Baylor University:** Doctor of Physical Therapy

Reasons to be excited about studying Biology at Grove City College:

## **Acceptances**

- Last year, our 2020 graduates were accepted to the following professional schools:
  - Wake Forest University School of Medicine
  - o Texas Christian University School of Medicine
  - Quillen College of Medicine at East Tennessee State University
  - o LECOM
  - o Campbell University School of Osteopathic Medicine
  - o Liberty University School of Osteopathic Medicine
  - West Virginia School of Osteopathic Medicine
  - o West Virginia University School of Medicine
  - o University of Pittsburgh School of Nursing
  - o Arcadia University (Physical Therapy)
  - o Gannon University (Occupational Therapy)
  - o Slippery Rock University (Occupational Therapy)
  - o St. Louis University (Bioinformatics)
  - o Ferris State University (Optometry)
  - o Indiana University (Optometry)
  - o Salus University (Optometry)

## Research

• Dr. Tracy Farone and her research team (Deidra Ressler '21, Katerina Bailey '21, Maura Ashley '21, and Alliefair Scalise '22) have made great strides in the development of Grove City College's apiary. The garden they planted last spring is now a certified "Pollinator Friendly Garden" by Penn State University. Additionally, even though the summer in Western, PA was dry, the bees in the GCC apiary are producing honey that will be harvested this fall. Perhaps you can stop by the bookstore the next time you visit campus and purchase some honey to take home! All proceeds will continue to support the apiary, including the research opportunities it provides for GCC students.

If you would like to learn more about GCC's apiary, please check out the following website:

https://www.pabeevet.com/



Photo Credit: D. Ressler '21