# BIOLOGY BULLETIN FALL EDITION

The Official Newsletter of the Biology Department



#### What was everyone up to this summer??

Our Fall is off to a great start. The campus is full and vibrant with so many students, faculty and staff. The energy is amazing. After such a turbulent year, wondering what some of us in the Biology Department had been up to this Summer? AND what is on tap for the FALL! Read on! And yes, Winter!

Core Courses		
Fall 2021	Winter 2022	Spring 2022
Course # Course Title	Course # Course Title	Course # Course Title
103 The Diversity of Life w/lab	103 The Diversity of Life w/lab	103 The Diversity of Life w/lab
104 Cellular Foundations of Life w/lab	104 Cellular Foundations of Life w/lab	104 Cellular Foundations of Life w/lab
205 Topics in Molecular Biology	205 Topics in Molecular Biology	108 Human A&P 1
206 Topics in Physiology	206 Topics in Physiology	205 Topics in Molecular Biology
242 Neurobiology		206 Topics in Physiology
		242 Neurobiology
		243 Bioinformatics
UPPER LEVEL COURSES		
Course # Course Title	Course # Course Title	Course # Course Title
320 Ecology w/lab	330 Animal Physiology w/ lab	315 Biology of plants w/lab
321 Herpetology w/lab	332 Comparative Vertebrate Anatomy w/ lab	319 Vertebrate Natural Hist. w/lab
324 Plant Ecology w/lab	350 Evolutionary Biology w/lab	325 Animal Behavior w/lab
380 Biochemistry w/lab	352 Microbiology w/lab	354 Development w/lab
384 Genetics and Molecular Bio w/lab	362 Experimental Neurobiology w/lab	355 Immunology w/lab
	370 Endocrinology	
487 Senior Seminar	378 Cancer Cell Biology w/lab	
	489 Senior Seminar	
Key:		
Fulfills population requirement for Bio major		
Fulfills organismal requirement for Bio major		
Fulfills subcellular requirement for Bio major		

#### BIOLOGY COURSES 2021/2022 ACADEMIC YEAR (subject to change)

### **NEWS!**

Nicole Theodosiou, associate professor of biology, is the recipient of the Stillman Prize for Faculty Excellence in Teaching.

#### September 14, 2021

"Nicole's students deeply appreciate the work that she puts into making her classes exciting, fun, interesting and enjoyable at the same time that they are challenging," said Michele Angrist, interim dean of faculty and vice president for Academic Affairs, in presenting the award. Her research interests include evolution and development of the digestive tract in the vertebrate lineage. She studies patterning (how different organs are ordered) and morphogenesis (how organs take on their final shape and function) of the digestive tract in vertebrate embryos and how the digestive tract evolved in the vertebrate lineage over 450 million years.

#### Integrated Science and Engineering Complex honored with state construction award

#### May 12, 2021

The College's Integrated Science and Engineering Complex was recently presented with the Associated General Contractors' Jeffrey J. Zogg Build New York Award.

The project was among six winning entries in the 30th annual competition. A nine-member committee of industry peers selected the winners based on outstanding managing skills, imagination,

overcoming challenging and unusual circumstances, scheduling accomplishments and project innovation.

See if you can locate these grand displays in ISEC!

# Bio Dept. Uplift

#### Liz Andonie & Chrissy Geren

We moved into this beautiful new space in the Winter of 2020. As we all know, March 2020 was not kind. We never had a chance to truly move in and make our new space "Ours". Liz and Chrissy (with help from many others!) concentrated on Uplifting our space to reflect the true Biology Department.

Don't forget to take a stroll among the halls this fall to see what is different!









### Fall Crossword!

15

18

24

49

53

41

21

#### Summer Stars

Who were the biological stars of 2021? Read the circled clues from top-left to bottom-right, plus 40-across, to find out!

23

29

#### ACROSS

- 1. Paul Hollywood's
- products 6. Crew leader, informally
- **9.** Thick (of)
- Group mailing tool
- 15. Squeak (by)
- 16. Top-level
- 17. \_\_\_\_\_-ground missle
- 18. Self-centered hunter of Greek mythology
- 20. Show compassion
- 22. Pre-streaming music tech.
- 23. versa
- 24. TV's warrior princess
- 27. Agreement, in Acapulco
- 31. Chile con carne, e.g.
- 35. Don Juan's mother
- Egyptian President Al-\_
- 38. Dons
- 39. Cheerios grain
- 40. With the circled letters, the biological stars of Summer 2021
- 42. Confucians' spiritual path
- 43. Meters and liters
- 45. Black, to poets
- 46. Bach's " \_, Joy of Man's Desiring"
- 47. Some noble gas particles, informally
- 49. Like owls' eyes
- 51. Watched
- 53. Earth's most populous continent
- 54. Donkey
- 57. Recurring every 7 years
- 62. One who shares fiduciary
- responsibility
- 65. Over the moon
- 66. Gives it a go
- 67. Bruins Hall of Famer Bobby
- 68. a million: slim odds
- 69. It may be an ace or a fault 26. Body spray brand
- 70. One of 7 in this puzzle
- 71. UPS alternative

- - 30. Easy \_

65

68

71

- Partners for life
- Wipe away
- 34. Strikes
- 37. Worshipers
- 40. "Teach Your Children" musicians, briefly
- 41. Win by
- 44. "Little piggy"
- 46. TV judge and conservative
- commentator Pirro
- 48. Psychoanalysis appt.
- 50. Honor musically
- 52. Rehab program
- 54. Drama units
- 55. With "at", holding a arudae
- 56. Mix
- 58. Parisian parent
- 59. Carded, informally
- 60. Straight as
- **61.** Bobcat relative
- 63. MLK Jr.'s title
- 64. Operate

who, according to this puzzle, are the Biological Stars of Summer 20217

Emgil Prof. Corbin (corbin; Qunion.edu) for a chance to win a prize!





#### Prof. Jeff Corbin

11 12 13

22

10

16

70 69 © 2021

63

#### DOWN

- 1. Kind of poet
- 2. Et

17

20

35

39

43

47

62

66

- 3. Enterprise Captain James Т.
- 4. Given name of West Wing's Martin Sheen
- Visit briefly
- 6. Face-off locale
- 7. "I guess so"
- 8. Copier company
- 9. "Don't tell \_\_\_\_ can't...!"
- French pronoun
- 11. Frisbee, e.g.
- 12. What might be on the tip of your tongue?
- Julia Roberts's character in the "Ocean's" films
- 19. Tech news website
- 21. Twenty: prefix
- 25. Part of a Facebook feed
- Standing Rock tribe
- 28. Silly
- 29. \_\_\_\_ stone: certain



# **Stable Isotope Analysis**

Thesis Students Sarah Wettergreen and Sasha Milsky with Professor Kathleen LoGuidice

Sarah Wettergreen and Sasha Milsky have been working with Professor LoGiudice all summer and are continuing into the fall. They were building on an ongoing project to explore whether stable isotope analysis of flat, questing ticks can tell us what host species they fed on last. They trapped mice, chipmunks and shrews and kept them in the lab. The animals were fed special diets while ticks feed on them. Sasha is also going to be trying to characterize the isotopic make-up of local mammals using their fur. She collected fur from all mammals that she could get her hands on via trapping and salvage of dead animals. What fun!

# Aggressive Territorial Displays in Lizards

Thesis Students Lea Steinberg and Timothy Fagan with Professor Leo Fleishman

We are studying aggressive territorial displays in the lizard Anolis sagrei, which consist of stereotyped up-and-down movement of the head and body. Using high speed video and computerbased motion analysis, we are testing the hypothesis that the motion velocity of these displays is influenced by the lizard body temperature, and therefore provides a reliable signal to opponents of the signaler's body temperature. Since lizard fighting ability is highly dependent on body temperature, display movement may have evolved as an "honest signal" of lizard fighting ability. We are also studying the visual system to determine whether lizards can detect these small temperature-based differences in signal-motion velocity.



#### **Upcoming Seminars**

Adopt the pace of nature: her secret is patience. ~ Ralph Waldo Emerson 10/21 ~ Cagney Coomer ~ Dartmouth Medical School 10/28 ~ Eric Yager ~ Albany College of Pharmacy 11/4 ~ Dionne Kasper ~ Dartmouth Medical School 11/11 ~ Floris van Bruegel ~ University of Nevada Reno



### Visual Acuity in Crayfish?

Thesis Student Jana Davis with Professor Feller

"For my thesis, I am studying the visual acuity of aquatic invertebrates, specifically crayfish. To do this, I am using an optomotor drum that was constructed in the lab last year to test two species of crayfish to determine the threshold of their visual acuity."

### More Research!

### Monitoring Environmental Change

Thesis Student Julia Charest with Professor Rice

Julia Charest ('22 Biology) is collecting peatmoss from a bog in the southern Adirondacks. For her thesis, Julia is setting up a growth experiment to explore how stable isotopes of carbon can be used as indicators of past environmental conditions.

### Bacteria

#### Research Student Michael Connolly with Professor Lauzon

The Hans Groot's Kill runs through the Union College campus and it is highly contaminated with fecal coliform bacteria, most notably E. coli. Natural isolates of bacteria are showing increasing levels of resistance towards conventional antimicrobial drugs. Bacteriophage or phage (bacterial viruses) therapy is a potential alternative to treating and curing bacterial infections that no longer respond to conventional antibiotic therapy. Michael is attempting to isolate and characterize bacteriophages from the Hans Groot's Kill that specifically attack and lyse E. coli bacteria. His research project will be used as a pilot study to determine the link between phage sensitivity and antimicrobial drug resistance in E. coli strains isolated from the Hans Groot's Kill. His work may further lead to the discovery of novel phages that could replace conventional antibiotic therapy in the near future.





#### Mushrooms and Molecular Genetics

Professor Stephen Horton

For the past nine years, my research has focused on a collaboration with a local company (Ecovative Design) that uses filamentous fungi in their manufacturing processes. Ecovative produces biodegradable packaging, and more recently, plant-based protein-rich food. I am able to leverage my research expertise to a practical end, with the added benefit of helping to develop a "green" technology. Using the "toolkit" of molecular genetics (including the new CRISPR technology), my research lab is trying to modify these organisms to help create "new and better" versions of these fungi that have additional

properties not found in the original strains. These genetically-modified fungi could lead to the finished product having greater mechanical strength, different odor and/or taste, altered surface properties, amongst other things.

# **Birds!**

Research Student Josephine Landry with Professor Bishop

Josie is working with Professor Bishop on window collisions. She has a daily route she walks to identify avian mortality at windows that are especially risky. These include large window installations, especially those found near a lot of vegetation.



# **CROSSWORD ANSWER**



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