



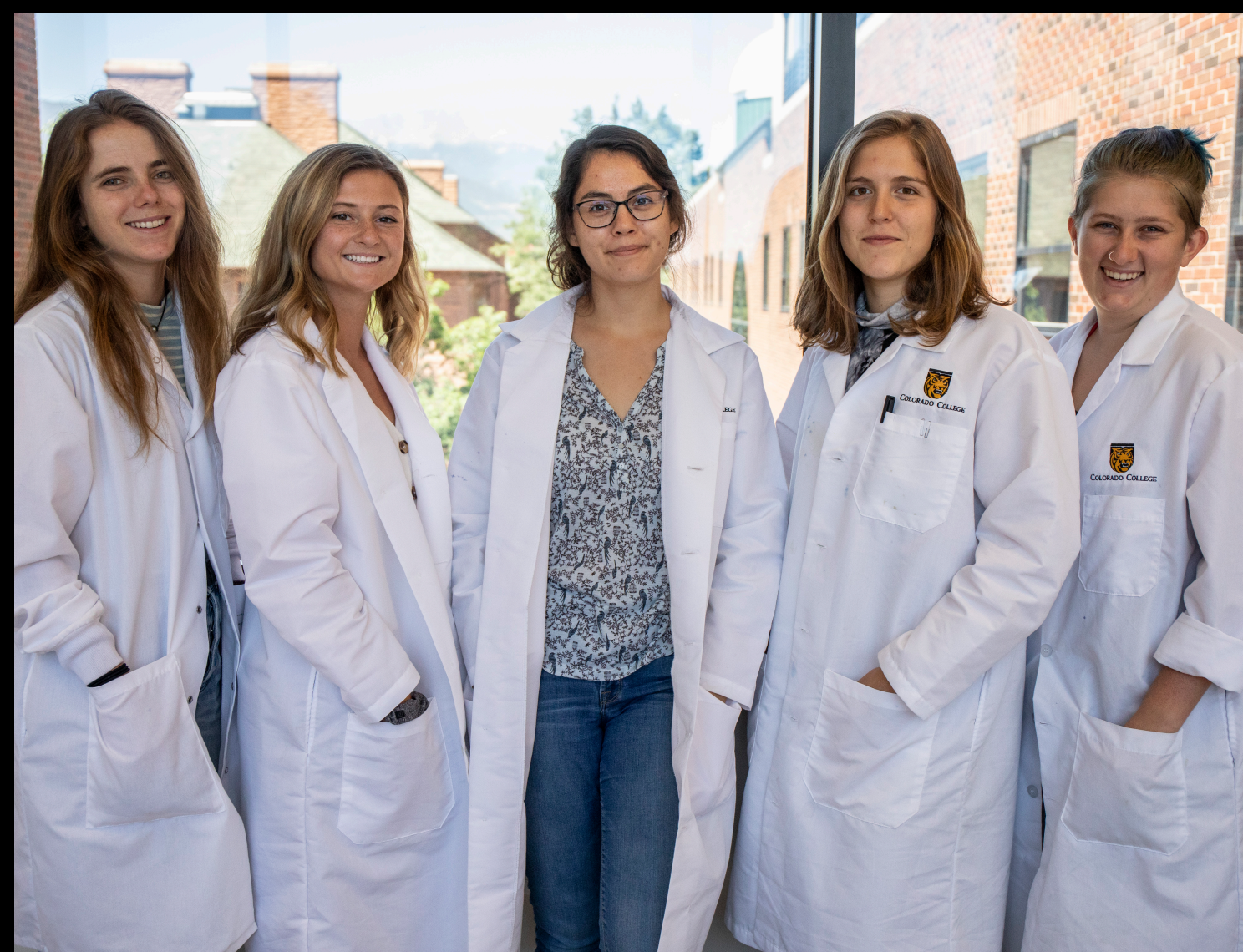
THE MESSENGER RNA

Department of Molecular Biology Newsletter | Spring 2020

Notable Accomplishments of Molecular Biology Students & Recent Alumni

- Emma Carlson '20 is a 2020 Fulbright Semi-Finalist. Emma applied to study antimicrobial resistance in *Staphylococcus aureus* as part of a Masters of Science program at the University of Sheffield in the UK.
- Carissa Sherman '21 and Kristie Shirley '20 presented their research at the 2019 Annual Biomedical Research Conference for Minority Students (ABRCMS) in Anaheim, CA. Carissa won a Poster Presentation Award - congratulations!
- Doctor, Doctor: Carly Merritt '18 is pursuing an MD/PhD at Boston University School of Medicine. Brandon Wolfe '18 was accepted to the University of Colorado School of Medicine. Juliet Fink '18 was accepted to medical school at both Emory and Dartmouth. Congratulations to Maggie Wolf '15 who recently earned her MD from Temple.
- Rockin' Research: Maddie Chrupcala '19 is in her first year of graduate school at Dartmouth. Caroline Boyd '17 is pursuing her PhD in Kim Seed's lab at the University of California, Berkeley. Just across the bay, Mariko Foecke '17 is pursuing her PhD in Biomedical Sciences at the University of California, San Francisco. Recipient of the NSF Graduate Research Fellowship Qiu Chang Wu '17 is in her third year of the PhD program for Systems, Synthetic, and Quantitative Biology at Harvard University where she works in the lab of Allon Klein.

MB@CC: News in a Flash



Members of the Hatton Lab, Summer 2019. From left to right: Madison Alexander '20, Madeline Stesney '20, Carissa Sherman '21, Melanie Mandell '20, and Madeline Smith '20. Madison was the recipient of the competitive Figge-Bourquin Summer Research Award and Carissa was a participation the NSF-funded Colorado College Noyce Scholarship Program.

- Delaine Winkelblech retired after 27 years of service to Colorado College. The department is grateful for her many years of hard work supporting our courses and students. We wish her an awesome retirement and fun with her new puppy!
- Jennifer Garcia, Sara Hanson, and Olivia Hatton all had successful 3rd year reviews.
- Our current paraprofessional, Sara Worsham '19, will be (thankfully!) returning to serve next year!
- The 2019-2020 seminar series included talks by: Sarah Elgin (Washington University in St. Louis), Patrick Shih (University of California Davis), and Scott Dixon (Stanford University).
- Kristen Wells, (CC '13; Stanford Genetics PhD candidate) will give the keynote talk - "Cell development at single-cell resolution" - at the 2020 Molecular Biology Day this April. Ten students will also present their thesis research.
- Our biggest class yet is set to graduate in 2020: 31 students! The class of 2019 and 2018 minted 26 and 19 molecular biologists, respectively.

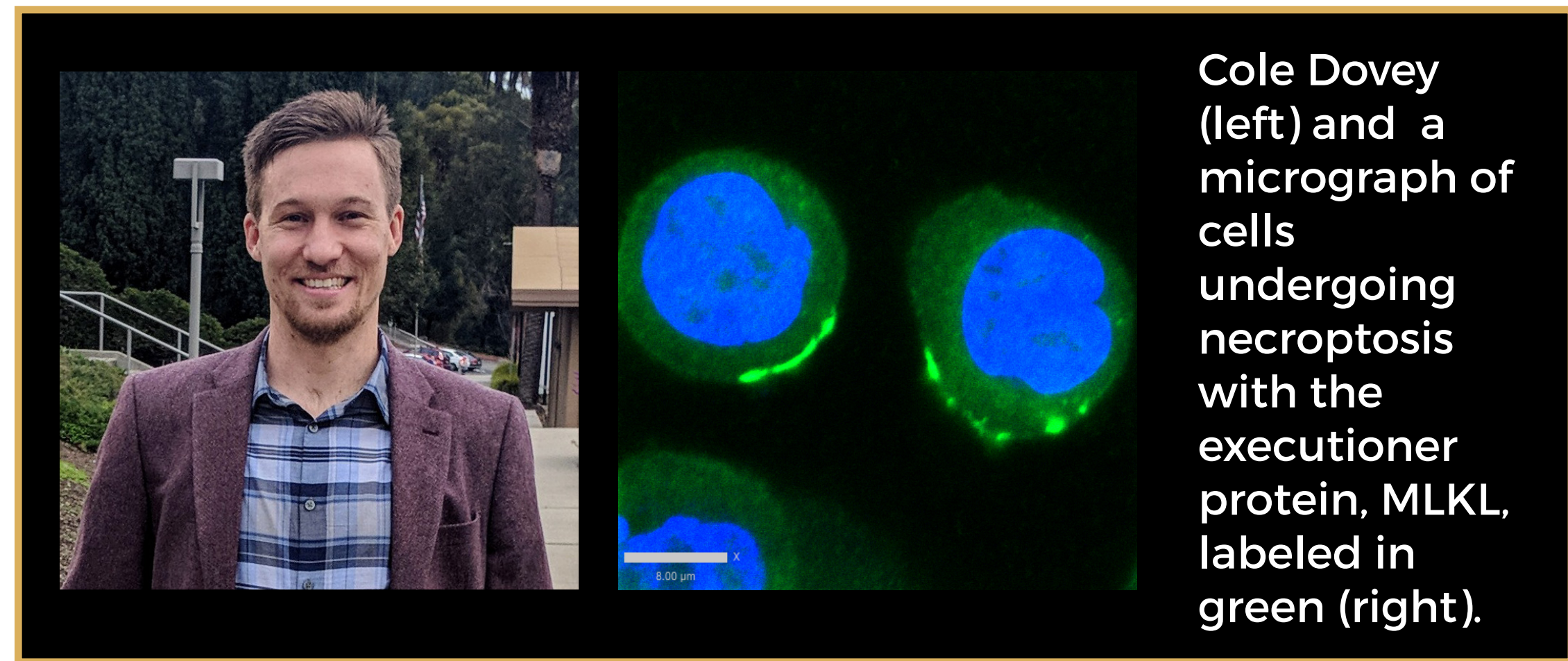
Phoebe Lostroh Serves at the National Science Foundation

Phoebe Lostroh is currently serving as a Program Director at the National Science Foundation. She administers millions of dollars in federal funding. Her portfolio is in the Genetic Mechanisms cluster of the Molecular and Cellular Biosciences Division which funds projects related to the ways that cells and viruses process and transmit genetic information. The division funds interdisciplinary research involving computer scientists, mathematicians, physicists, and chemists (among others). She conducts merit review of proposals and recommends projects for funding, communicates with scientists before, during, and after merit review, reviews budgetary information, assembles and facilitates panels of reviewers, and does a variety of outreach activities to train diverse communities in the NSF merit review process and in general grant-writing skills. Finally, in early 2020, Phoebe served as a resource to the house staff science committee and NSF leadership about coronaviruses and advised NSF funding for critical basic research on coronaviruses.



Meet Our 2019-2020 Visiting Professors!

Cole Dovey earned his Ph.D. from the University of California, San Francisco, and pursued postdoctoral research at Stanford University School of Medicine. His research at CC is focused on better understanding cell death, a process that is dysregulated during neurodegeneration, inflammatory diseases, and cancer. He encourages his students to cultivate their passion for science, critical thinking, and communication throughout their lives and careers.



Cole Dovey (left) and a micrograph of cells undergoing necroptosis with the executioner protein, MLKL, labeled in green (right).

Kristin Moore currently studies inheritance and gene regulation in a strain of photosynthetic bacteria that have both ecological and industrial importance. Her doctoral work at the University of Utah focused on mammalian cellular stress pathways cells, which are induced during both developmental and disease states in organisms conserved from yeast to humans. Kristin enjoys sharing her passion for basic research across the evolutionary landscape with her students in both the classroom and the lab.



Kristin Moore (left) and a cyanobacteria colony at the 8 cell stage, with chromosomes labeled with GFP (green, right).

Recent Publications from Faculty & Students

Ralph Bertrand has 4 recent research publications: “Investigating the genetic diversity and affinities of historical populations of Tibet” in *Gene*, “The Marquesan’s at the fringes of the Austronesian expansion” in *The European Journal of Human Genetics*, “Afghanistan: conduits of human migrations identified using AmpFI STR markers” in the *International Journal of Legal Medicine*, and “The Y chromosome of the Soliga, an ancient forest-dwelling tribe of South India” in *Gene X*. Ralph also recently published a book: “Ancestral DNA, Human Origins, and Migrations.”

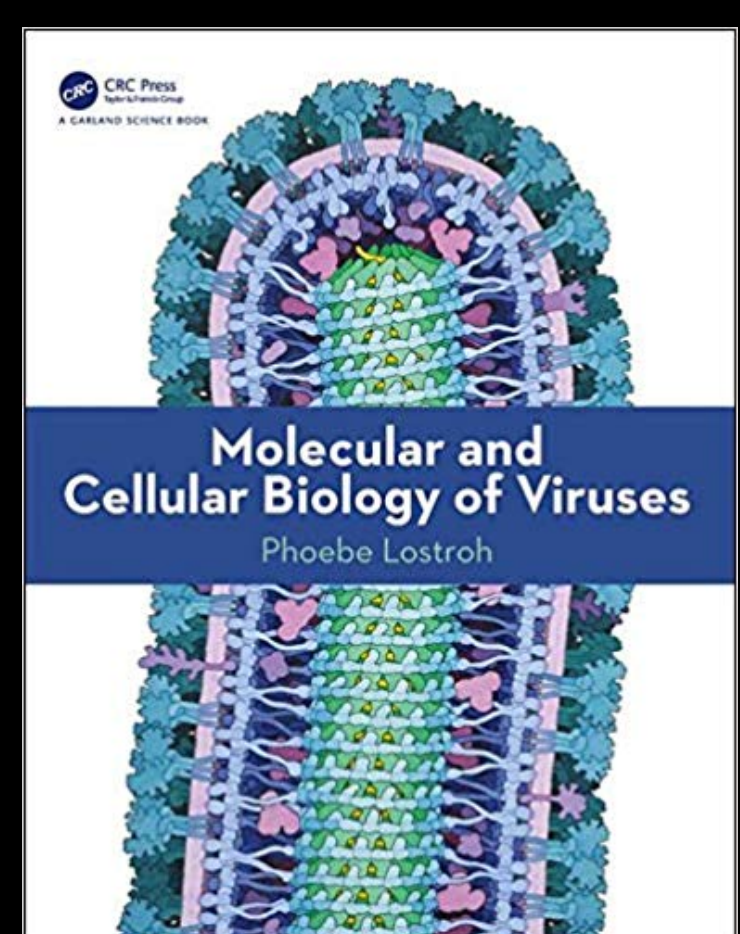
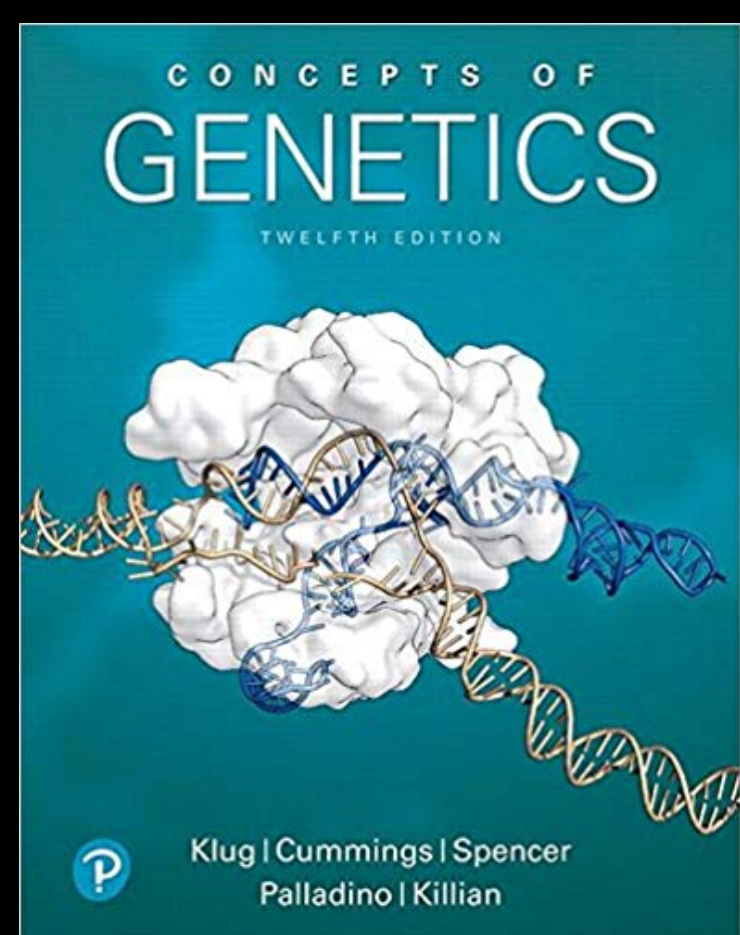
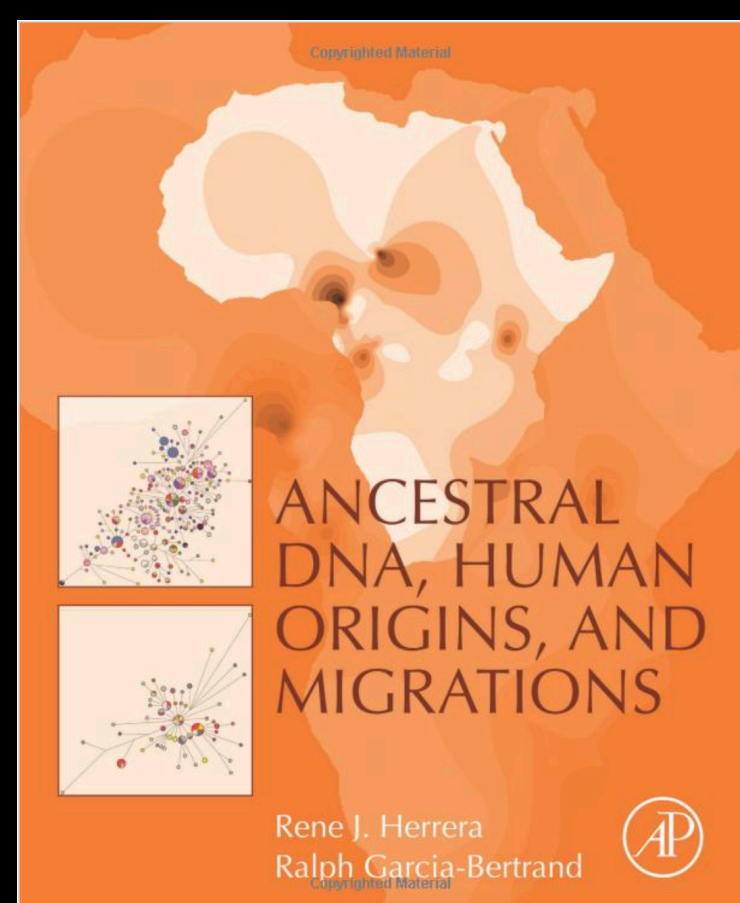
Sara Hanson published an article in *Yeast* with CC student collaborators, Dahao Feng '18 & Jules Oliff '20, titled “Carbon source requirements for mating and mating-type switching in the methylotrophic yeasts *Ogataea (Hansenula) polymorpha* and *Komagataella phaffii (Pichia pastoris)*.”

Olivia Hatton published an article “Epstein-Barr Virus Latent Membrane Protein 1 Regulates Host B Cell MicroRNA-155 and Its Target FOXO3a via PI3K p110α Activation” in *Frontiers in Microbiology*. This article features the work of eight current and former Colorado College student collaborators, including Madeline Smith '20, Madison Alexander '20, Melanie Mandell '20, Carissa Sherman '21, Madeline Stesney '20, Joselinne Medrano '20, Kurt Ringwalt '20, and Gillian Dohrn '19.

Darrell Killian published two articles, including “Shep interacts with posttranscriptional regulators to control dendrite morphogenesis in sensory neurons” in *Developmental Biology*, which featured Samuel Mathai '18 and Katherine Miller '18 as co-authors. Darrell also published two textbooks with his team of co-authors: *Concepts of Genetics*, 12th edition and *Essentials of Genetics*, 10th edition.

Phoebe Lostroh’s recently-published textbook *The Molecular and Cellular Biology of Viruses* was released this July. One of the online reviews states:

“Thank heaven for Dr. Phoebe Lostroh who has written the most magnificent book on virology that I have ever read, and I have been a passionate student of virology for forty years. This beautifully illustrated text teaches us the mechanisms, the elegance and the beauty of these creations unlike any book I have ever read. I would only urge you to buy the hardcover text as this book will be a gem in your library for a lifetime. I am usually a harsh critic, but the viruses of Earth owe a debt of gratitude to such a talented writer.” (Thomas Weisman MD)



Covers of textbooks recently authored by Ralph Bertrand (top), Darrell Killian (middle), and Phoebe Lostroh (bottom).