



**Northwestern
College (NWC)**

BIOGEEK: The Northwestern College Biology Departmental Newsletter

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Spring 2016

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- * New Biology Programs Approved
- * SEA-PHAGES comes to Northwestern College
- * Student/faculty research
- * Northwestern Endowed Research Grant
- * Science and Religion Club is formed
- * Students and faculty serve

New Biology Major and Program Approved

Two new programs, housed in the biology department, were recently approved by the Northwestern College faculty. The biology department now offers a major in Biology: Genetics, Molecular Genetics, and Cellular Biology (GMBCB) for students interested in genetic counseling, genetic assistant careers, graduate school, or health careers in which the molecular aspects of disease are emphasized.

We also are offering our first graduate certificate in Genetics and Genomics. This graduate certificate is completely online and is designed for individuals in healthcare (nurses, P.A.s, etc.) who find themselves increasingly called upon to translate the complex world of genetic testing for their patients. The certificate consists of six 3-credit courses and can be completed in 12 months. Please recommend this program to

any colleagues who might be interested and contact Dr. Tolsma if you are interested in and/or willing to teach as an adjunct in this unique program (stolsma@nwcwiowa.edu).

Our colleagues in the chemistry department also have a new major in Biochemistry. This major contains a number of requirements in biology and we are very enthusiastic about working with them to promote this new major as well.

Northwestern Biology Accepted into SEA-PHAGES

Drs. Furlong, Noordewier, and Tolsma submitted an application to become part of the Howard Hughes Medical Institute (HHMI)-funded program, SEA-PHAGE (Science Education Alliance). We were notified in January that we have been accepted into this exciting project. As a result, students in General Biology, Microbiology, and Genetics can earn acceptance into a NWC SEA-PHAGE cohort. As the cohort moves through this series of three courses they will strategically collect soil samples

(farmland, native prairie, restored prairie, etc.), isolate soil bacteria and the phages that infect those bacteria. They will image the phage with electron microscopy, isolate and analyze the phage DNA in microbiology. After the SEA-PHAGE core lab sequences the phage DNA, the students in genetics will annotate the phage genome and, referring back to the sites of collection, measure biodiversity differences between sites.

One student from each co-

hort will be selected to present their findings at a SEA-PHAGE symposium each spring.

Drs. Noordewier and Tolsma will go to Maryland for training in July and Drs. Furlong and Tolsma in December.

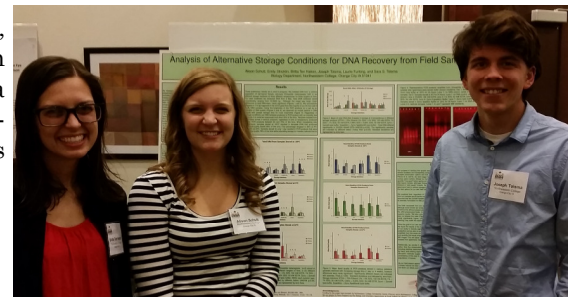
Like us on Facebook:
Northwestern College
(NWC) Biology Department,
Northwestern College
Ecological Science
Department, and/or
Northwestern College
Future Physicians Club

Students Present Research

Britta Ten Haken ('16), Emily Stricklin ('16), Alison Schutt ('18), and Joseph Tolsma ('17) presented their research, *Analysis of Alternative Storage Conditions for DNA Recovery from Field Samples*, at Kansas State University's Ecological Genomics Symposium in November ('15).

In April, several groups of students will be presenting their research at the Iowa Academy of Sciences annual meeting in Des Moines. Dr. Tracy's students, Alison Schutt ('18), Skyler Hill-Norby ('18), Austin Blankespoor ('18), Joseph Tolsma ('17), and Calvin Van Surksun ('18) will present *The Effect of Eyeless and Wingless Mutations on the Reproductive Fitness of Fruit Flies* as a poster. Dr. Furlong's

Aquatic Ecology students, Emily Stricklin ('16), Joseph Tolsma ('17), Kyle Cleveringa ('16), Anna Daumer ('16), Jennifer Inge ('17), Lincoln Morris



('17) & Joshua Tampio ('17), will present a poster on their research entitled *Use of Suspended Hester-Dendy Samplers for Bio-monitoring in Silty Streams*.



Day of Learning in Community 2016: Faith and Science, Faith in Science, The Science of Faith

February 10, 2016 was a busy day for Northwestern College scientists because science and faith were the focus of this year's Day of Learning in Community (DLC): *Faith and Science*, *Faith in Science*, *The Science of Faith*. Dr. Noordewier served on the planning team. Dr. Justin Barrett, a cognitive psychologist at Fuller Theological Seminary, was the keynote speaker.

Presenters/respondents included biology faculty members Drs. Byron Noordewier, Sara Tolsma, Ralph Davis, Tyrone Genade, Todd Tracy, and Elizabeth Heeg. Alumni Jason Flanagan and John Swart plus a host of current biology majors gave presentations at breakout sessions and/or presented posters.

"The DLC provided a great format for me to think about how theology and science affect each other. It was encouraging to hear speakers disagree with each other in humility and acknowledge that Christianity encompasses many different viewpoints." Luke Galloway ('17)

YADA: A New Science and Faith Club on Campus

Northwestern students, faculty, and staff have formed a new science and religion club named YADA (Hebrew for "to know"). The club had its first meeting in January with nearly 20 students and faculty from the biology,

psychology, and chemistry departments in attendance. Since its first meeting, YADA hosted a web conversation between Lawrence Krauss, Stephen C. Meyer, Denis Lamoureux entitled "God, Science

and the Universe."

YADA is planning to host Dennis Venema in April for an event that will be co-sponsored with Dordt College's biology department.

Internships

Do you work in an organization that could serve as a learning environment for an undergraduate biology major? Consider providing

an internship. You receive extra help plus the enthusiastic energy of a student eager to learn. The student learns practical application of

classroom concepts and discerns their career path. A definite win-win! Contact Dr. Laurie Furlong to learn more (lfurlong@nwcioa.edu).

Northwestern Endowed Research Fellowship Grant

Dr. Tyrone Genade and his students have been conducting some exciting research to determine if *Nothobranchius furzeri* can serve as a model organism for Parkinson's Disease.

Megan Feuchtenberger ('16), Arianne-Gesell ('16), Mawuli MacDonald ('16) and Courtney Vanegas ('16) have all contributed to this project.

Dr. Genade was awarded the Northwestern Endowed Research Fellowship to continue this work (2016-17). The research proposal submitted for the Northwestern Endowed Research

Fellowship grant is available online at <https://www.nwciowa.edu/biology/faculty/tyrone-genade>.

Dr. Laurie Furlong is completing her sabbatical and was awarded the Northwestern Endowed Research Fellowship grant last year (2015-16). Her work continues an ongoing project examining genetic drift in mayfly populations isolated on islands. Emily Stricklin ('16) and Joseph Tolsma ('17) have worked on this pro-

ject with Dr. Furlong throughout her sabbatical leave. She spent some quality time on Santa Cruz Island this spring for her research project.



Northwestern Students, Faculty, and Alumni Serve

Alison Schutt ('18), Skyler Hill-Norby ('18), and Taylor Stephens ('17) are spending part of their summer with the Luke Society, a medical missions organization. The Luke Society works alongside native physicians and works to spread the Gospel through preaching, teaching, and healing. The three NWC students will work in the hospital providing healthcare and community health education.

Dr. Todd Tracy led a Spring Service Project to Haiti. While he was there,

he met with the sophomore agriculture students from the university about soil properties and soil conservation practices (because of deforestation,



Haiti is virtually devoid of topsoil), Iowa agriculture, and the American bison. He also demonstrated the use of pitfall traps to measure invertebrate biodiversity in a papaya grove.

Biology alum, Dan Johnston ('05), and his wife Kali ('06) will be visiting campus in April to share their plans to participate in long-term medical mission in Central Asia. Dan, a P.A., will be training national physicians and helping them establish self-sustaining clinics.

Alumni Feature

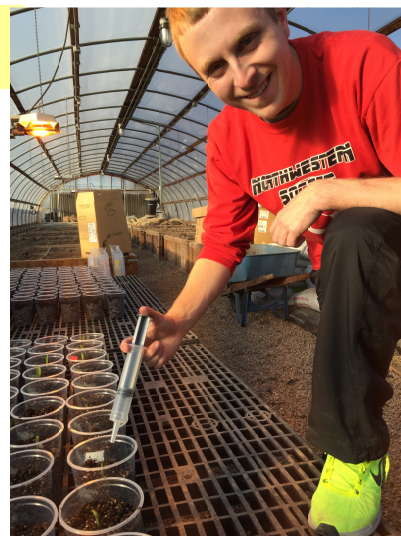
I am a first-year M.S. student in the Department of Entomology at the University of Nebraska-Lincoln. My study examines spatial variation in susceptibility of western corn rootworm (*Diabrotica virgifera virgifera* LeConte) to Bt corn across Nebraska. This should allow us to develop sustainable long-term WCR management strategies.

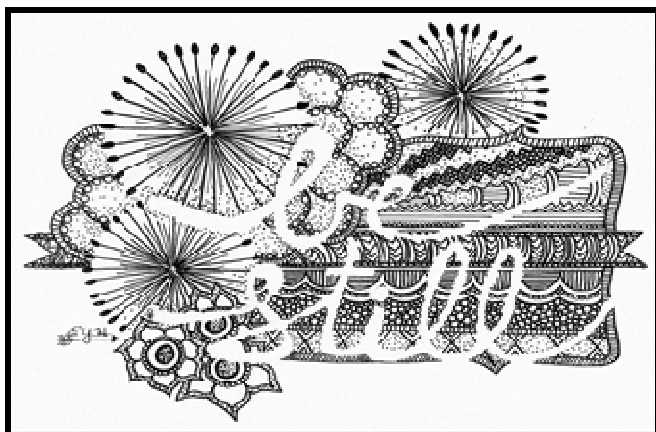
Graduate school was one of the best decisions I have made in my academic career. The biology program at North-

western College went above and beyond in preparing me for this new journey. The professors are always encouraging you to develop your own ideas and giving you the tools you need to be successful after graduation. My numerous undergraduate research experiences helped me develop into the scientist that I am today.

- Jordan (Jordy) Reinders (2015)

*If you are an alumnus willing to be featured in a future newsletter, please contact us!





REFLECTION: PSALM 40:10

As students, staff and faculty look towards the end of the semester, we find ourselves juggling never-ending to-do lists. There doesn't seem to be a time where we can just *be still*. Do you find this in your life too? Our schedules can be so all-consuming that we lose our sense of peace. By meticulously taking control of our schedules we think we will be in control and gain peace. Perhaps, instead, we need to intentionally *be still* so that we can spend time with the One who is in control. There we will find our Peace.
- Dr. Elizabeth Heeg

The Mission of the Department of Biology

The mission of the Department of Biology of Northwestern College is to provide students with an understanding of the complexities of life that encompasses all levels of biological organization. These levels range from the molecules of life to living organisms, from molecular interactions within cells to cellular and other interactions within organisms, to interactions of organisms with one another and their environment. To gain this understanding, students will be introduced to classical and modern approaches to biological inquiry. Students will thus gain an appreciation for the basis of our current understanding of biology and will be prepared to apply experimental inquiry to solve problems in biology.

This mission will be carried out within the context of a Christian liberal arts education in which God is recognized and honored as Creator, Christ is acknowledged as Lord over all and Redeemer of creation, and we are called to be stewards of creation. The Department of Biology strives for its students to engage in honest and open investigation while being faithful to their Lord and Savior. Thus, the comprehensive integration of faith, learning and living espoused by Northwestern College shall be reflected in the life of the faculty and students of the Department of Biology.

Senior Spotlight

Josie Clark ('16)

Major: Biology Health Professions
Minors: Spanish & Psychology
From: Story City, IA

Josie will attend University of Nebraska Medical Center in Omaha, NE after graduation in May.

Josie chose NWC because it felt like a place that she could call home. Northwestern's strong biology department, successful basketball program, and genuine Christian atmosphere were also important to her. She has not been disappointed.

Josie loves the relationships she has built at NWC and the leadership opportunities she has

taken advantage of. She is also grateful for the many challenges that she has been presented with in classes, her faith, and relationships.

Her best NWC memory is her experience with Northwestern's Summer of Service program. Josie went to Perú through the Luke Society to work in a medical clinic for 7 weeks. In her words, "It was an eye-opening experience that transformed the way that I view the world, the kingdom of God, and the medical field."

Josie presented at the 2016 Day of Learning on a book that one of her classes read together, *The Immortal Life of Henrietta Lacks*. The presentation was a great opportunity to share with a larger audience what she learned as well as to challenge the audience to think about ethical issues

"It was an eye-opening experience that transformed the way that I view the world, the kingdom of God, and the medical field."

- Josie Clark ('16)

that exist in science and the medical field.

Josie plans to become a Physician Assistant at a children's hospital or at a clinic that serves a high population of Hispanic patients whether in the United States or in a Latin American country.

