

The PULSE

The Place for Undergraduate Learning and Scientific Exploration

The Department of Natural Sciences and Mathematics Newsletter

M.S. in Biology: Introducing the graduating class of 2010

Started in Fall 2008, the Masters program is about to experience yet another first. This spring the students who began the program will be the first to graduate from Dominican with an M.S. in Biology. Here is what some of them had to say about the program.

Mark Orcholski

What drew you to the masters program?

After I graduated from undergraduate study at Dominican in 2008 I was unsure of my place in science. I knew that I was attracted to the study of science and I figured that I should put all of those years of studying science to good use. But instead of dedicating 4-6 years in a Ph.D. program, I decided to pursue the opportunity to work in a professional lab with talented scientists on cutting edge research at the Buck Institute for Age Research for only two years to find out what science means to me and how I can make a career out of it.

Did you learn something you didn't expect to learn or have any experiences you didn't expect to have in the program?

I was pleasantly surprised to find that the environment at the Buck was very friendly and helpful as well as progressive. From the first day I was never hesitant to ask my co-workers questions about anything, and upon asking I knew that they would enjoy answering my questions. Before starting the program I was worried that everyone would be too busy and/or stressed out to provide me adequate help.

What are your plans/goals for after graduation?

I recently was extended an offer to attend Watson School of Biological Sciences at Cold Spring Harbor Laboratory in New York and I accepted their offer to begin work towards a Ph.D. in Neuroscience in August 2010.

Bridget Gengler

What drew you to the masters program?

I had graduated Dominican and was thinking of pursuing research. I had some jobs and internships working in other labs but was still unsure. This master's program was a great way to get a taste of research without the commitment of getting a PhD. This program is unique since we are full time researchers as opposed to full time students.

Did you learn something you didn't expect to learn or have any experiences you didn't expect to have in the program?

I learned that I did not like research and that much of graduate study is based upon my own drive. While I have others to guide me, my learning is facilitated mainly through me. I was not expecting to become so close with my lab members and it will be sad to leave them in May, but they have taught me so much about science, research, and myself at times.

What are your plans/goals for after graduation?

I plan to take a little break from science. I decided that while research and med school are not the right fit for me, I would make a good teacher. Specifically in math and science probably around the junior high and high school levels.



New chemistry major announced, to begin next Fall

By Krysten Kimbel

With the addition of the Science Center to Dominican's campus two years ago, the Department of Natural Sciences and Mathematics has been increasing in size and options. True to this spirit of change, the chemistry major has recently been announced and approved by Dominican University of California. This major promises to incorporate a new chemistry-specific curriculum with the undergraduate research capabilities already available.

Adding a chemistry major to the department's repertoire was the next logical step in expansion. Eighty percent of students with a Biology major already have a minor in Chemistry, and some students have expressed an interest in there being a chemistry major. Not only will this major be great for students, but also for the school—Dominican will become a more competitive institution against other schools, such as the University of San Francisco and the University of Portland. The chemistry major also provides a great option for students looking to enroll in medical and pharmacy

schools, or to excel in forensic science.

The major will offer two choices for emphases: Biochemistry or Environmental Chemistry. Although some of the requirements for the chemistry major will be similar to the biology major, some new classes such as toxicology, physical chemistry, and spectroscopic analysis will also be required. A Chemistry Research Methodology course suite will also be added, rather than the Biology Research Methodology class we all have to take now.

Even the professors are excited for this new major. Dr. Maggie Louie, head of the Chemistry program, and Dr. Kenneth Frost both agreed that this major is a logical addition to the department. Frost did warn all of the future chemistry majors that one of the biggest challenges will be physical chemistry, which will require a semester of thermodynamics and a semester of quantitative and statistical mechanics.

Whatever class you take, the chemistry major will prove difficult, but definitely worth the hard work and effort put into it. The chemistry major will not fail to impress the students and faculty, and will undoubtedly be a successful addition to the department's curriculum.

Quick Facts About the Chemistry Major

Admission Requirements

Graduation from an accredited high school with a total of 15 units in college preparatory subjects, to include the following:

- 4 years of English
- 2 years of one international language
- 2 years of college preparatory mathematics-algebra, geometry, trigonometry, etc. (3 to 4 years preferred)
- 1 year of lab science to be taken in grades 10-12 (2 years preferred)
- 1 year of U.S. history or one-half year of U.S. history and one-half year U.S. government (2 years preferred) (one year of world history or Western civilization is an acceptable alternative for international students)

The University encourages students to choose additional courses in at least two of the following areas: science, art, computer science, English, history, international language, music, and social science.

Dominican University of California operates on a semester-unit system. To graduate, the student must complete a minimum of 124 semester units in college courses. At least 48 of the 124 units must be in upper division courses.

Degree Requirements

Lower Division Requirements

CHEM 2000/2100 General Chemistry I/II
 CHEM 2990 Chemistry Research Methodology I
 MATH 1600/1700 Calculus I/II
 PHYS 2000/2100 General Physics I/II with Laboratory
 BIO 1100 Cell and Developmental Biology
 BIO 2800 Genetics and Molecular Biology

Upper Division Requirements

CHEM 3800/3900 Organic Chemistry I/II
 CHEM 4000 Quantitative Analysis
 CHEM 4100 Biochemistry I
 CHEM XXXX Physical Chemistry I
 CHEM XXXX Physical Chemistry II
 CHEM XXXX Spectroscopic Analysis
 CHEM 4990, 4991, 4993 Chemistry Research Methodology II, III, IV
 CHEM 4996 Internship

Emphases Courses (An emphasis is required)

Environmental/Green Chemistry Emphasis
 ENST 3000 Environmental Chemistry
 CHEM XXXX Toxicology
Biochemistry Emphasis
 CHEM 4500 Biochemistry II
 BIO 4410 Molecular Biotechnology

Total Units for Major 74-75

Conference Time:



Participation in conferences is a strong tradition at Domincian. Along with the usual contingent sent to the National Conference on Undergraduate Research, students also attended professional conferences for biochemistry, molecular biology, and cancer research.

Use Of Fish Parasites As An Index Of Stream Health In The San Francisco Bay Area.

Angie Andrews, Sage Keeley, Sonia Flores, (Anindo Choudhury, Mietek Kolipinski, Jim Cunningham, and Sibdas Ghosh)

Acquisition Of Communication Skills In Research Classes

Jaennika Aniag, David Ramirez, Diara Spain

Directed Differentiation Of Carcinoma Cells As A Therapy Targeting Malignant Cancer Cells

Jaennika Aniag, Mark Gutierrez, Rebecca Jimenez, Nicole Moss, Ariana Rodriguez, Ana Salabasheva, Kathleen Umali, (Mohammed El Majdoubi)

Singing Behavior Of The New Zealand Robin (Petroica Australis)

Arthia Balagot, Arzina Khan, and Venessa Morales (James B. Cunningham)

Determining Relationship Between Diet And Fecundity Of Northern Spotted Owls (Strix Occidentalis Caurina) In Marin County, California

Angelina Andrews, Christopher Bettiga and Giselle Ponton (James B. Cunningham, Mietek Kolipinski and Sibdas Ghosh)

Growth And Survival Of Delta Smelt Fed Field-collected Copepods

Benjamin Colteaux (Sibdas Ghosh) and Lindsay J. Sullivan

Glycosylation Of Cyclooxygenase-2 (Cox-2) Interferes With The Efficacy Of Cox-2 Inhibitors

Katherine Goricki, Mary-Neama Latu, Mandy Omoregie, Kamara Graham (Mary B. Sevigny)

Upright Macroalgal Biomass Inside And Outside Marine No-take Reserves In Little Cayman, Cayman Islands, In 2007

Jeremy P. Krames, Paul-Michael P. Organist, Karla D. Cruz, Mercedes Pacheco (Dr. Carrie Manfrino, Dr. Vania Coelho)

Upright Macroalgal Cover Inside And Outside Marine No-take Reserves In Little Cayman, Cayman Islands, In 2007

Paul-Michael P. Organist, Jeremy P. Krames, (Dr. Carrie Manfrino, Dr. Vania Coelho)

The Marine Ecosystem Of Pearl Harbor, Oahu, Hawaii: Past, Present, And Future

Ashley Rubin and Gabriellee Cailing (Mietek Kolipinski, Paul DePrey, and Sibdas Ghosh)

An Educational Resource Kit For Preventing Non-native Plants From Invading California National Park Service Units

Kristyn Perry and Ian McFadden (Mietek Kolipinski and Sibdas Ghosh)

The Role of Glycosylation in the Efficacy of Cyclooxygenase-2 Inhibitors

Kamara Graham (Mary B. Sevigny)

Presented at the annual meeting of the American Society for Biochemists and Molecular Biologists (ASBMB) in Anaheim, CA.

Chronic Cadmium Exposure Promotes Breast Cancer Progression - Esera Vegas (Maggie Louie)

The Effects of Benzyl Butyl Phthalates on Cell Proliferation of MCF7 Breast Cancer Cells - Elyza Genilo (Maggie Louie)

Formaldehyde Induces DNA Damage in MCF-7 Breast Cancer Cells - Esmeralda Ponce (Maggie Louie)

Vitamin D Receptor Resensitizes Resistant Breast Cancer Cells to Tamoxifen - Rachel Chow (Maggie Louie)

Presented at the annual meeting of the American Association for Cancer Research (AACR) in Washington, D.C.

TriBeta tradition continues with induction of new members

By Tracy Krinard

On April 22, 2010 Dominican's Phi Pi chapter of TriBeta inducted its new members. All of the new members were eager to be inducted and could be seen waiting outside the doors of the Guzman lecture hall, dressed to the nines, as their family and friends found seats in the crowded hall.

Dr. Marty Nelson, Dean of the Health and Natural Sciences Department, expressed her faith in the newly inducted students because they are "already engaged in the activities that the honors society promotes" on a daily basis. Dr. Nelson introduced the headlining speaker: Pat Kendall, Medical Group Administrator for Kaiser Permanente in Marin and Sonoma Counties, with which Dominican has an internship program. Kendall is also involved with numerous Marin County organizations including the North Bay Leadership Council and Healthy Marin Partnership. Kendall spoke to the times we live in now calling the students the "recipients, guardians, leaders of the new healthcare reform," which she informed us has been called "one of the largest non-war reforms since the New Deal." She urged the inductees to keep in mind that in going into healthcare you are going into the "intimacy business," because "what is more intimate than your insides, both physical and mental?" One of Kendall's most emphasized pieces of advice to the inductees was to "try not to forget [the lives that you are touching]." She offered hope and reminded the inductees not to "lose your heart and all that surrounds it."

Dr. Sibdas Ghosh, Associate Dean and Chair of the Natural Sciences and Mathematics Department and Tri-Beta Faculty Advisor, echoed Kendall with his own advice, "Intimacy is the best thing you learned today... Also, keep your curiosity."

The ceremony was simple, elegant, and went off

without a hitch, lacking the controversy of last year's ceremony. After Dr. Sibdas Ghosh swore in the new board members, the board swore in all of the new members who signed the membership book and were presented with their cords. The new board members and inductees received a hearty round of applause and the students' accomplishments were celebrated by friends and family alike over a buffet of Chinese food.

2010 TriBeta Inductees

Emmeline Academia	Ariana Martinez
Amanda Anderson	Circe McDonald
Jennifer Andes	Manuel Montalban
Angelina Andrews	Vanessa Morales
Jaennika Aniang	Gabriel Navarrette
Natalie Aquino	Mandy Omoregie
Arthia Balagot	Denise Ortiz
Christopher Bettiga	Ryan Paulus
Sarah Chow	Kristyn Perry
Shelly Clermenco	Christina Phillips
Amanda Cristobal	Brittany Philpot
Katia Dono	Michelle Pogozelski
Taylor Dorst	Tyler Rivenbark
Elicia Fernandez	Jamie Robles
Katherine Goricki	Ariana Rodriguez
Christen Grant	Jackielyn Sabangan
Mark Gutierrez	Ana Salabasheva
Millie Hathaway	Keenan Smith
Stephanie Huezo	Matthew Stegman
Rebecca Jimenez	Martin Tabije
Arzina Khan	Cory Tiller
Kristin Koenig	
Alanna Labat	
Ana Laus	
Nicole Leonetti	

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PULSE newsletter reserves the right to edit submissions for grammatical and stylistic errors.

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