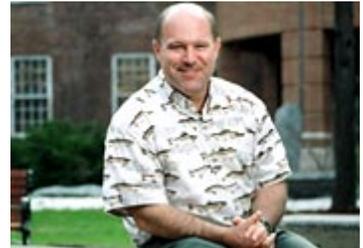


BIOLOGY matters

Spring 2012

A note from the Chair - Another academic year comes to a close – and once again there is much to report. More students, faculty, and courses as the program continues to grow, more students attending research conferences and recognized for outstanding achievements, new summer research initiatives, other research updates, and some news from Alumni. The spring has been quite busy with visits from prospective students and their families, including some events hosted by the Saint Michaels' Admissions office; interest in our program remains strong.



Web Site update – The entire Saint Michael's College web site, including the Biology Department page, has been under revision for many months. The new look will be publicly available some time shortly after commencement. Stop by for a visit later this spring or summer.

NEWS UPDATES

New Biology Faculty - Scott Lewins

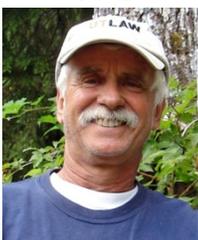


The Biology Department is pleased to welcome Instructor Scott Lewins. Scott joined the Department in fall 2011, and we are very pleased that his position has been continued due to continued growth of our major. He has taught lab sections of both Introduction to Ecology and Evolution (BI 151) and Introduction to Cell Biology and Genetics (BI 153), and developed a course in Insects and Society for students not majoring in the sciences. Scott will teach these courses again next year, as well as

offering a new upper-level course in Applied Insect Ecology.

Scott has a B.S. from SUNY College of Environmental Science and Forestry, and M.S. from University of Maryland. He has been conducting applied agricultural research on farms throughout Vermont since he moved here in 2006. His research has focused on biological control of agricultural pests through enhancing native natural enemy communities, and his areas of expertise include entomology, biological control, insect agroecology, and sustainable agriculture. He enjoys snowshoeing, backcountry skiing and hiking with his two Bernese Mountain dogs, and cooking and eating great food.

Visit by Sigma Xi speaker



Dr. Gene S. Helfman (Emeritus Professor, Odum School of Ecology, University of Georgia) visited St. Michael's on March 22 and 23. Dr. Helfman has spent his career studying fishes and fish behavior in a variety of habitats around the world, and has authored many scientific papers and two textbooks on fishes – *The Diversity of Fishes* (now in its second edition) and *Fish Conservation*. As a professor in the Zoology Department at the University of Georgia for over 25 years, Dr. Helfman helped guide and mentor many graduate students, including SMC Biology Professor Doug Facey.

Dr. Helfman gave a Thursday evening address, entitled "Fishing Is(n't) Murder – the Ethics of Sport Fishing", gave a research presentation to Prof. Valerie Banschbach's Animal Behavior class on Friday morning ("Why do fishes hide under docks?"), and shared his white shark cage-diving experience with students during an informal lunch hosted by Beta Beta Beta on Friday.

New Course offerings for Fall 2012 – Thanks to our new faculty, and also to meet the needs of the students in our expanding program, the Biology Department is pleased to offer some new course options for the Fall of 2012. All will initially be offered as "Topics...." courses, but may become permanent if student demand is strong.

BI 235A Topics: Essential Microbiology (Prof. Donna Bozzone) - Suitable for sophomores or juniors, this course will explore the world of microbes including bacteria, archaea, viruses, microbial eukaryotes, and even some very tiny worms. The focus will be on the biology of this varied array of microscopic organisms with particular emphasis on their importance in health, disease, and human civilization.

BI 235B Topics: Fundamentals of Genetics (Prof. Dagan Loisel) - Study of the principles of classical (Mendelian) genetics, population and evolutionary genetics, and molecular genetics. Topics will include the chromosomal and molecular basis of inheritance, transcription and translation of genes, genetic architecture of natural populations, analyses of evolutionary processes (i.e. genetic drift, mutation, and selection), mechanisms of speciation, and ecological genetics.

BI 236A Topics: Applied Insect Ecology (Prof. Scott Lewins) - This course will examine the multiple roles insects play in our working and living landscapes, with an emphasis on insect-human interactions. Topics will include insect agroecology, biodiversity and conservation, vector ecology and pest management. The laboratory will include field-based inquiry and lab-based collection and identification techniques.

Honors for our students:

Each year, many of our Biology majors are inducted to various honor societies in recognition of their outstanding accomplishments in academics and research. This spring, we are pleased to recognize the following inductees:

Phi Beta Kappa: Kristen Cowens, Allen Hubbard, Bridget Levine, Karri Makinen

Beta Beta Beta (Tri-Beta): Stephanie Bacon, Max Brenner, Anne Burnham, Kayla Carnell, Kristen Cowens, Anna Fetterolf, Courtney Gannon, Laura Ostrout, Kelsey Velie, and Sara Williams. The following graduating seniors had been inducted in the past - Amy Blackey, Gabrielle Buczek, Christopher Dustin, Emma Fox, Jacob Girard, Michael Herring, Spenser Johnson, Bridget Levine, Tom Perekslis, Janel Roberge, Ian Sullivan, Jake Withee.

Sigma Xi, the Scientific Research Society: Alli Bleil, Kristen Cowens, Jake Girard, Bridget Levine, Stephanie Locke, Tom Perekslis, Janel Roberge, Ian Sullivan

RESEARCH UPDATES

Hartnett Endowment ignites research

The John C. Hartnett Endowment was established in 2000 by Paul A. Lachance, Ph.D. ('55) and Therese Lachance to honor Professor Emeritus John C. Hartnett ('43) for his dedication to excellence in teaching and his outstanding influence on biology and other students at Saint Michael's College for forty-four years. The endowment provides funds to support student-faculty research opportunities, and when the endowment was first established there were very few funding sources to support student research - especially full-time research for the summer. Therefore, the Hartnett Endowment became a very important means of supporting summer research students for quite a few years.

Thanks to the support of our generous alumni, the Hartnett Endowment has grown considerably. In addition, in more recent years our faculty and students have had success in attracting other funding sources to support summer research, thereby increasing the overall amount of summer research activity in the Biology Department, but without drawing heavily on the increasing funds in the Endowment. This year, however, the Hartnett Endowment will provide a huge boost in kicking off a new research initiative in the Biology Department.

For several years, our Biology Department has had a cooperative research relationship with Camp Johnson, the Army National Guard facility adjacent to our campus. The Camp Johnson property supports the largest remaining stand of sandplain forest in Vermont, a forest community that thrives in sandy, low-nutrient soils and that requires regular fires to be sustained. As part of the long-term management plan, some sections of the Camp Johnson sandplain forest were burned in the mid to late 1990s. Each fall for the last six years, our students taking BI 151 (Introduction to Ecology and Evolution) have studied plants and invertebrates in both the burned and unburned sections of the forest to see how they differ.



In a new research initiative made possible by support from the Hartnett Endowment, a new section of the forest will be burned in spring of 2013. This not only will provide an outstanding research opportunity, but it also will benefit the management and maintenance of this rare forest community. To provide background information needed for future studies of forest recovery, Devin Latremore ('14), Nicholas Salvas ('15), Jennifer Labrenz ('13), and Aerielle Matsangos ('15) (in photo, left to right), and will be working with professors Valerie Banschbach and Peter Hope in the summer of 2012 to study the plant and invertebrate communities in areas to be burned in 2013 and in adjacent sections of the forest. In addition, our first-year students taking BI 151 in the fall of 2012 will also be providing critical foundation data in preparation for the burn.

This new research initiative, which includes collaboration among the Saint Michael's Biology Department, Camp Johnson, the Vermont Agency of Natural Resources, and The Nature Conservancy, will provide a living laboratory of sandplain forest recovery right next door – something that students and faculty will be studying for years, and perhaps decades, to come.

Other Summer Plans....

This will be the second summer of Professor Mark Lubkowitz's research collaboration on carbon partitioning funded by the National Science Foundation. For summer of 2012, Saint Michael's students will once again be placed in research labs at collaborating institutions: Stephanie Locke and Amanda Costa (University of Florida), Frank Gilcrest (University of Nebraska), Chad Chapman (University of Missouri), and John Reiser (Purdue University).

Professor Declan McCabe has had funding continued for his multi-year stream project supported by Vermont EPSCoR. The project expanded this year as part of the Research on Adaptation to Climate Change (RACC) grant awarded to Vermont EPSCoR. The new project brings the Center for Workforce Development and Diversity to campus and we welcome new staff members Miranda Lescaze, Lindsay Wieland, and Katherine Chang. The following SMC students will be joining Professor McCabe's macroinvertebrate laboratory for the

summer of 2012: Anne Burnham, Partick Bousquet, and Jared Peick. In addition, Ismael Orenge and Tatiyanna Hughes from Universidad Metropolitana in Puerto Rico will join the lab along with Adam Heckle from Community College of Vermont. Three students will work with Katherine Chang in the water quality laboratory at Saint Michael's College: Courtney Pinto (SMC); Carolyn Herkenham (UVM) and Elizabeth Bennett (UVM). Other Saint Michael's College students (Corynne Dedeo, Christopher Lavallee, and Dachele London) will participate in other parts of the RACC project at the University of Vermont and Johnson State College.

Professor Adam Weaver's neurobiology lab will be active again this summer. Graduating senior Kristen Cowens will stay for the summer as a research technician, and students Marci Wood and Alison Lajoie will also be working with Adam on research projects characterizing heart-related neurons in three species of leeches. This work is supported by the Vermont Genetics Network.

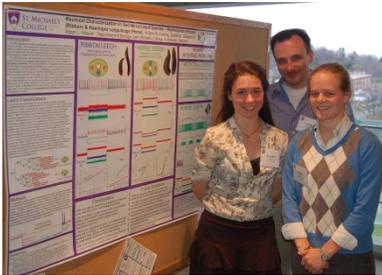
For quite a few years, the Biology Department at Saint Michael's has had an agreement with the local office of the USFWS (located in Essex Junction) to provide students for paid summer internship for students. This summer, Taylor Luneau and Amelie Jensen will be working with our USFWS partners.

In addition to the students mentioned above, Hannah Lynch will remain here for the summer assisting with a variety of departmental needs and projects.

CONFERENCE PRESENTATIONS

Professor Mark Lubkowitz had three students present research posters at the **54th Annual Maize Genetics Conference** in Portland, Oregon: Stephanie Locke (*Identifying insertions in phloem-related genes using UniformMu maize*), Allen Hubbard (*Expression levels of several membrane transport proteins (Pip1, Pip2 and Sut1) and the photosynthetic enzyme Rubisco in the Zea Mays tie-dyed2 mutant*), and Jake Withee (*Maize sucrose transporter genes display distinct circadian expression patterns*).

East Coast Nerve Net conference - Danielle Shepard and Kristen Cowens



The East Coast Nerve Net conference is an annual meeting of mostly invertebrate neuroscience researchers that we recently attended in Amherst, MA. The conference was a great learning experience for both of us. We learned an incredible amount of information about some really cool invertebrates such as Cephalopods and Dragonflies. For instance, we learned about the neural control of the camouflage used for defense in animals such as Octopus and Cuttlefish. There was so much information to be learned through talks, poster presentations, and conversations with the graduate students and lab supervisors. We also learned how to effectively give a poster presentation. Despite our preliminary research data, many of the people who viewed our poster were extremely interested in the direction our lab is going in. This was very encouraging as a first academic conference where we were interacting with graduate PhD students and post-doctoral researchers. In addition, we also learned that an important part of the biological research process is to not only be able to ask and answer questions but also be able to admit when you do not have the answer. We ran into some very interesting and brilliant people at the conference and we will continue looking up their research in the future.

We presented a poster on our work from the research we did together last summer; Kristen continued to analyze this work for her Senior Research Project. In short, we are studying a Central Pattern Generator (CPG), which is a small neural network that controls rhythmic behaviors in animals. The system we are investigating is the CPG controlling the heartbeat system in leeches. Our research involves recording from the neurons of several species with differing heartbeat system anatomy to see if there are any resulting changes in the CPG. We hypothesize that there will be differences in the CPG's synaptic strengths and other neuronal properties due to the fact that they are producing a functional motor pattern for animals with different anatomy. So far, we have been able to prove that we can indeed record from neurons of this CPG in several different species (which to our knowledge has never been done before because the medicinal leech is the most widely studied). However, we do not have much data as most of our time last summer was spent creating new dissection techniques and trying to

locate the cells of interest. Presenting the preliminary data on a poster was daunting at first because we were in the same room with others who had enormous amounts of data. However, the people at the conference were still very interested in our work and gave us many compliments on our poster. All in all, it was a fantastic experience and the East Coast Nerve Net is definitely worth attending in the future with further results!

STUDENT PROFILES

Kristen Cowens



Home town: Middlesex, VT

Career interest: I would really like to get into research in the Neuroscience field in neurodegenerative disease in particular. I have always had the desire to deconstruct a disease down to the molecular level. In other words, I am not happy until I know how something works mechanistically. This is why I plan to pursue a graduate degree in either Neuroscience or Neurobiology.

What has your Saint Michael's experience, particularly your experience as a biology major, been like? – My experience at St. Mike's has been nothing but positive. I feel that it is a great place to flourish academically because the class size is so small. It is extraordinarily easy to be able to ask professors questions as they are all very approachable and passionate about what they do! As a biology major, I have also been doing some research with a professor here. This experience has been incredibly important for me as I need this experience for graduate school and have also gained a great mentor out of it.

What additional activities did you pursue related to the biology major? - I have pursued summer research (mentioned above) as well as being a TA in the department.

What are your post-graduate plans? - To pursue a graduate degree in either Neuroscience or Neurobiology.

Mike Herring



Home town: I split time between Dover, NH and Hollywood, FL

Career Interest: Medical Doctor, more specifically Orthopedic or Cardiovascular Surgeon

What has your Saint Michael's experience, particularly your experience as a biology major, been like? My Saint Michael's career has been terrific - full of extracurricular activities (I'm big into sports, especially hockey). That, however, is secondary to my experience with the biology department. The biology department of St. Michael's was why I chose to come to this school over many other highly regarded institutions, and it has not disappointed. The faculty of the biology department here are unmatched across all majors, especially when it comes to knowledge of their particular fields and the guidance they are willing to provide to their students. The community as a whole is one of caring and compassion, but the biology department goes beyond this to foster, guide, and even bring about untapped potential and intelligence in its students.

What additional activities did you pursue related to the biology major? Regarding my biology major, I was quite active outside of the classroom. I was a charter member of St. Michael's Beta Beta Beta chapter, the biological honors society, and served as its secretary in the 2011-2012 school year, as well as serving as the vice president of my class. I have also pursued many volunteer and internship positions, including working as a floor volunteer for Gifford Medical Center in Randolph, VT during the summer of 2011 in both the radiology and cardiovascular

departments. Also, throughout my college career, I have been active in shadowing orthopedic surgeons, even though I feel as though my floor work has been more influential and beneficial with regards to my education.

What are your post-graduate plans? I have quite a full plate after graduation. This June, I will be moving out to Los Angeles, CA to assume my post as a cardiac research fellow at Good Samaritan Hospital under Dr. Robert Kloner. Because of my Saint Michael's education, I have earned a job reserved for individuals who have already graduated from medical school and look to specialize in cardiology - a tremendous opportunity. I will spend approximately 13 months in Los Angeles before matriculating to medical school in the fall of 2013.

Karri Makinen

Home town: Walpole, NH

Career interest: Unsure, but something environmentally-focused

What has your Saint Michael's experience, particularly your experience as a biology major, been like? I have had a very positive experience in the biology program at SMC. I was able to tailor the program to fit my interests and take mostly classes related to Ecology. I have enjoyed courses with a hands-on lab component that puts students in the field to learn by doing. The flexibility of the program allowed me to spend a semester abroad studying Wildlife Conservation and Political Ecology in Tanzania (photo was taken in the Serengeti). While I was sad to be away from St. Mike's, my experiences in Tanzania were extremely eye-opening and I learned more from experiential learning than could have ever been gained from reading books alone. I have recently completed my senior honors capstone research on the effects of climate change on sugar maples and the maple industry. It was great to work independently on a topic of my choosing.



What additional activities did you pursue related to the biology major? I have been very involved in several clubs on campus, including Green Up, the environmental club. Through this club, I have had great opportunities to grow as a leader while improving and implementing campus sustainability measures. I have organized trips to Washington, D.C. for rallies, brought well-known speakers to campus, hosted Earth Week events, worked with administration to ban the sale of bottled water, and set up countless campus awareness campaigns. These experiences have taught me important real-life skills of organizing and leading a group.

What are your post-graduate plans? I plan to stay in the Burlington area for at least a year. I will be working in the SMC organic garden for the summer and looking for a full-time job to begin in September.

Jake Girard

Home town – Adams, MA

Career interest – Business and Biotechnology

What has your Saint Michael's experience, particularly your experience as a biology major, been like? – I have had an enlightening experience at Saint Michael's College in and outside of the classroom. As a creative, slightly naïve first-year student I entered the college setting inquisitive about the truth behind our natural world. Surrounded by bright and capable professors, I have developed a deeper understanding of what that really is, something that now motivates me daily to pursue life with genuine direction. I



have been empowered and challenged by my professors to pursue my interests, and resultantly had a number of great opportunities related to my studies.

What additional activities did you pursue related to the biology major? – As a T.A. for Professor Lippert's genetics lab course, I gained insight on how to help others reach their potential, and simultaneously I developed important skills and principle knowledge that would later benefit me in my research and career exploration. That following summer I earned an internship at a Berkshire Medical Center of Massachusetts with the anesthesia department. My technical background from biology and practice of sterile technique, highlighted largely in microbiology, became very relevant in my day-to-day, setting up transducers, moving patients, assembling pediatric and adult ventilator circuits, among other tasks. Additionally, last winter I traveled to Costa Rica with the biology department for a study tour of the tropical ecology and land conservation of the Monteverde cloud forest and Selva Verde rainforest. The rich culture and species diversity culminated in such a way, that that experience was one I will remember and cherish for years to come.

What is your research? – With an interest in biology and mathematics, in '09 I became involved with a group of mathematicians who were working on a biological research project, which explored a field of nanoscience – self-assembling DNA nanostructures. Ultimately, after two years of presenting and reorganizing our work, we published a paper in the American Journal of Undergraduate Research.

Currently, as part of a biology honor's research course offered to seniors, I am studying the etiology of an endemic idiopathic cardiomyopathy in China called Keshan Disease. I am working with Professor Schroll of the chemistry department, for her expertise in bio-organic chemistry and selenocysteine, as one of the believed root causes of the disease deals strongly with the biochemistry of selenium. My study is literature-based and focuses upon epidemiological and clinical analysis, and synthesis of the known information surrounding to this controversial subject. These great opportunities have instilled in me a passion for research, and from that I have developed an integrative approach to viewing science, technology, and the natural and social world.

What are your post-graduate plans? – I was offered a job at NEOGOV, located in the Greater Los Angeles Area, a company that builds and delivers Software as a Service (SaaS) and on-demand human capital (HCM) resource applications for the public sector. I plan to work there for a couple of years to gain experience in business and software/CS. Simultaneously, I would like to get involved with research in the sciences in that area or take more courses in the sciences to better develop my ability to find solutions to relevant problems. My future goals are to join the Peace Corps for their NGO program, followed by graduate studies, working towards a career of entrepreneurship in biotechnology.

ALUMNI NEWS & PROFILES



Congratulations to **Anna Michael ('07)** – Earlier this semester, we received this piece of [exciting news](#) about Anna Michael, who graduated from the SMC Biology program in 2007, earned Doctorate of Veterinary Medicine and Masters of Public Health degrees at the University of Minnesota, and has now taken over a veterinary clinic in the "Land of 10,000 Lakes".

Maggie Holmes ('06) graduated from the University of Vermont College of Medicine in 2011 and is now in her residency training for Pathology at Georgetown University Hospital.

Matthew Giulianelli, DMD ('01)

Hometown: Amsterdam, New York

Academic Degrees: Bachelors in Science, Saint Michaels College('01) and Doctor of Dental Medicine, Tufts University School of Dental Medicine('05)

Current Position: Dentist/Private practice and owner of Champlain Smile Solutions

What got you interested in your current field? After thinking about various career options, some having nothing to do with healthcare, I settled on medicine. I started talking with various doctors in different specialties while I was in high school to help me narrow down my choices. I also talked with and shadowed some dentists, and knew instantly that I would enjoy doing it. I think it was the combination of different skills and the demand that the profession puts on you to continually grow and improve that really attracted me.



What experiences in the Saint Michael's College biology department prepared you for your post-graduate training and your career? The faculty was incredibly supportive and always led me down the right path. Dr. Bozzone was my advisor as I was preparing to apply to schools and always made sure I was doing the right things to help me achieve my goal. Also, classes with Dr. McCabe and Professor Hope were very interesting and helped broaden my knowledge base and comfort level within biology and this was invaluable when entering the often times rigorous and challenging curriculum of dental school. I have many fond memories of all of the classes and experiences I had while studying biology, and I had no idea at the time how much it would help me take on my future classes at Tufts.

Are there specific opportunities you think biology majors should pursue before graduation if they are interested in dentistry? I think exposing yourself to the different opportunities within dentistry is a great idea. I had observed different general practitioners and specialists while at Saint Michael's College and it helped me determine that I wanted to be a general practitioner before I entered dental school. You can always change your mind while you are in a dental program, but it is best to prepare yourself and focus on a specific area early on if you can. If you have an opportunity to take part in any type of healthcare outreach program, whether it's here or abroad, try to do it. It is important to keep in mind service to others. Lastly, look for any leadership opportunities and take them. As a dentist, you can go into private practice, public health, research, the military, etc., but you have to start learning the art of leadership if you want to be successful in whatever you do.

What advice would you give current Saint Michael's College students interested in graduate study and/or specifically interested in your field? - The most important is to build a vision for your life. Who do you want to spend it with, who do you want to serve, and what kind of person do you want to become? Do not stray from your vision and do not compromise. I can't tell you how this simple yet profound piece of advice has impacted me, and helped me learn from mistakes that I have made when I did start to wander from my vision. Second, you should seek out a great mentor in dentistry. Great relationships with mentors should have respect, trust, shared experience, and reciprocity. A great mentor will help shape you just as much as you help shape them as you both grow with each other. Finally, getting a dental education is expensive, especially if you cannot attend a state school. Always keep in mind that your debts will in some way impact decisions you may have to make years from now. If you incur a large amount of debt, have a solid plan to pay it back as quickly as possible. Pick a path in dentistry that will allow you to do so. Sound financial planning will be key for you and your family's future and will enable you to continue to give your patients the best care possible.

Helen French ('06)



Current position: 1st year student in the Physician Assistant Program at the University of New England in Portland, Maine.

Background: I grew up in Fairfax, Vermont. Obtained a B. S. in Biology at SMC (with a focus in cellular & molecular bio); served in AmeriCorps as a case manager for homeless patients at a community clinic in Denver, CO; participated in post-baccalaureate courses at Montana State University in Bozeman, MT; and now attend UNE's PA program.

What got you interested in your current field? - I've always had a passion for serving in the medical field. Like many, I was on the MD track for a long time. I was not familiar with the physician assistant position until after graduation when I worked alongside a PA and MD at a community clinic in Denver. I was intrigued and impressed by the PA's scope of knowledge, autonomy in practice and relationship with her patients. After further research into the career I became attracted to the flexibility, opportunities for growth and ability to explore a variety of medical fields during one's career as a PA. I invested a vast amount of hours shadowing and working with PAs, MDs and DOs and I determined that the PA position was most conducive to my personality and my lifestyle while fulfilling my goals as a healthcare provider.

What led you down the path to where you are now? - Curiosity led me down my path every step of the way, as well as my determination to find my niche as a care provider. It's a wonderful trait and I encourage you all to follow yours. And don't worry, we're not cats.

What experiences in the Saint Michael's College biology department prepared you for your post-graduate training and your career? - The quality of education from SMC's biology department is remarkable and undoubtedly well prepared me for my post-graduate endeavors. The professors' support and dedication were vital along with the high standards for academic success, thorough labs, examinations and research opportunities. I was always encouraged to think creatively and independently and was taught when and how to utilize proper resources. This enabled me to embrace and develop my learning style and come away with a solid understanding of fundamental scientific theories that have been crucial to furthering my education in medicine. To this day I can recall the mantras the professors would engrain into us; I can still visualize the drawings on the white board and the explanations that accompanied them. This laid a solid foundation for my future medical education and helps me to understand disease and medical processes from a wider perspective.

Do you have any advice for students interested in becoming physician assistants? - Experience is the key to your future so seek out as much of it as you can! Many PA programs require a certain number of paid, full-time clinical work experience hours. It varies widely between schools as to how many hours and which types of jobs qualify. This can be frustrating but if you spend some time reviewing a few of your choice programs' requirements you'll know where you stand and what you have to accomplish. A great resource for is <http://www.paeaonline.org/> which offers a "Physician Assistant Program Map" that allows you to search for programs by state. There is a PA program directory that you can pay for - but keep in mind that it is absolutely not necessary because there is plenty of free, accurate information out there for people who know how to use the internet!

Once you've got the bare minimum down for requirements use that curiosity to gain interesting experiences, as it is likely these experiences that will help you to stand out to the admissions committees. Additionally, understand that choosing to pursue a career in medicine involves being an active member of your community, one who advocates for healthy lifestyles (note the plural) and for the most vulnerable members of our society. There are so many ways to do this- from joining town meetings, signing petitions, supporting local organizations, etc. By

staying active we remind ourselves that being a medical provider requires unconditional compassion, understanding and the importance of treating patients in a holistic manner.

Are there specific opportunities you think biology majors should pursue before graduation?

- Study abroad! One of the best experiences of my life!
- Internships are cool! SMC offers an abundance of internship opportunities that you can apply for. I did mine with the Chief Medical Examiner at FAHC and was allowed to stand in and assist with forensic autopsies. A hands-on educational experience and you get to meet people with years of experience in the field. Plus “networking” points and college credit!
- Don’t forget to save time for the non-science activities that interest you in life. I must say that through maintaining my passion for the outdoors and being involved with the M.O.V.E. office at SMC, I met the most motivated and inspiring people. This was refreshing when my mind felt overwhelmed with organic chemistry models!

Tyler Gaudet ('07)

Current position: Environmental Scientist at Tetra Tech Inc. and aquaponic food producer at Fluid Farm Aquaponics

Background: Tyler is from Augusta, Maine, and completed his B.S. in Biology at Saint Michael’s in 2007.



I currently work as a fisheries biologist for a large global environmental consultant. My time is split between field work and the office as I travel a lot and work on a number of different projects when fisheries work is light. I have done a lot of bird and bat work for offshore wind power industry over the last year, conducted archaeological digs in the Bahamas, fish surveys in the Andes of Peru at a 500 year old gold mine, and marine fish surveys offshore in Southern California. Working for a consultant is often a diverse job, where you work on many different projects every year, but I mainly do freshwater and marine fisheries work.

What got you interested in your current field? I have always had an appreciation for nature and natural processes, but field courses at SMC made me want to work outside.

What led you down the path to where you are now? Since Burlington is surrounded by so many great waterbodies, I was able to go fly fishing before class and that really spurred my interest in fisheries and aquatic ecosystems. I knew that I wanted to work outdoors as much as possible as a professional and that guided me towards working for an environmental consultant.



As a side project from my full time job, I built a greenhouse in downtown Portland, ME where I raise tilapia fish and grow herbs and greens hydroponically from the fish waste in one system; it’s called aquaponics. There are so many harmful and unhealthy ways that we produce our food now, so I got interested in aquaponics as an environmentally friendly, sustainable, method of food production. I had a few aquaponic systems at home that I was experimenting with and I spoke with a local hard cider maker and he made some room for me to build a greenhouse as an urban

farm behind his fermentation facility. So I have been building it out over the last year and will be supplying local restaurants and farmers’ markets this summer. I enjoy my current fisheries biologist position with my company, but I hope to grow food and operate a greenhouse as a career in the future. I would rather be in a greenhouse

than behind my computer! Some photos of my aquaponic greenhouse can be seen at:

<http://www.facebook.com/FluidFarmAquaponics>

What experiences in the Saint Michael's College biology department prepared you for your post-graduate training and your career? I conducted an internship with the US Fish and Wildlife Service as an invasive species control technician controlling sea lamprey in the tributaries to Lake Champlain during my junior and senior year. That experience confirmed that I wanted a career that allowed for field work. A field trip to Costa Rica with the SMC biology department studying dart frogs and leaf cutter ants furthered my interest in environmental work.

As far as courses that made a difference, I would say the senior scientific writing course was one of the most beneficial courses that I took at SMC. I use the writing skills that I took away from that course every day at work, writing reports, interpreting data sets, and writing field protocols.

Do you have any advice for students interested in your field? Well, study what you are interested in, graduate (*don't party an unreasonable amount*), and then make it happen by being proactive! Be open to new opportunities; look at things from as many different angles as possible before making a decision or possibly writing something off. Network as much as possible, let people know you are out there and are passionate about what you do. Meeting people in your field is so valuable; you can't have too many friends. Join groups, volunteer, and get out and meet people because you never know what opportunities might pop up.

Are there specific opportunities you think biology majors should pursue before graduation? Internships. Not only did I take away many useful scientific skills from my internship with the USFWS, I was able to get a glimpse of how state and Federal agencies operate and what goes into regulatory decisions that affect the public. And now working for a private company, those skills and insight that the internship provided me with are helpful in project planning.

Not to mention, having pre-graduation experience really sets those students apart from the crowd when applying for their first jobs and makes them much more attractive to companies.

What advice would you give current Saint Michael's College students interested in graduate study and/or specifically interested in your field? I do not currently have my graduate degree, but a common theme that I hear is to take time between undergraduate and graduate school and try to get a little experience in your field to get a little taste of it. I know a few people who went straight into graduate school and came out with degrees that they realized they hated or do not even use because they never actually worked in the field before they went full steam ahead into graduate school. Graduate school can be lot of time and money, so it's important to make sure it's necessary and the right time.