Nicole Nova | Curriculum Vitae

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E-mail: nicole.nova@duke.edu | **Website:** `nicolenova.com`
Nationality: Swedish, U.S. permanent resident

Interests: Mathematical & empirical modeling in ecology and evolutionary biology, population genetics, eco-evolutionary dynamics, evolutionary medicine

Academic Positions

Duke University **Durham, NC**
Associate in Research *2015 – present*
Department of Biology, Koelle Research Group.
Working on mathematical modeling of the eco-evolutionary dynamics of HIV and the immune system.

Dana-Farber Cancer Institute / Harvard School of Public Health **Boston, MA**
Research Trainee *2014 – 2015*
Department of Biostatistics and Computational Biology, Michor Lab.
Worked on an abstract stochastic population genetics model applied in cancer development.

Education

Royal Institute of Technology (KTH) **Stockholm, Sweden**
Electrical Engineering *2012 – 2013*
GPA 3.93/4.00

Karolinska Institutet **Stockholm, Sweden**
M.Sc. in Dental Surgery *2007 – 2012*
- Thesis: *Chronic inflammation and pain: Assessment of c-Fos and ATF-3 as markers of spinal neuronal activity in a pain model of rheumatoid arthritis*
- Advisors: Dr. Per Alstergren, Dr. Camilla Svensson

Award: Erasmus Mundus Scholar - recipient of a stipend for exchange studies at St. Bartholomew's and the Royal London School of Medicine and Dentistry, Queen Mary University, UK (Spring 2011).

International English Gymnasium **Stockholm, Sweden**
Diploma of Natural Sciences *2004 – 2007*
GPA 20.0/20.0 + honors 2.5/2.5 - including extended curriculum by 300 credits (2800/2500).
Award: Valedictorian

Research Experience

Royal Institute of Technology (KTH) **Stockholm, Sweden**
Robotics Programmer *Spring 2013*
Worked in a team of five KTH students to deliver a functioning hardware/software robot prototype balancing and moving on two wheels.
- Project: *Autonomous Robot Accomplishing Standstill Balance and Forward Motion Using Segway Technology*
- Supervisor: Dr. Cristian Rojas, Automatic Control Laboratory, School of Electrical Engineering.

Karolinska Institutet **Stockholm, Sweden**
Research Program in Medical Sciences *Summer 2010*
I was investigating various markers for chronic pain in autoimmune diseases such as rheumatoid arthritis. I performed antibody probing and immunohistochemistry on spinal cord sections from a mouse model.
- Project: *Assessment of c-fos as a marker of spinal neuronal activity in a pain model of rheumatoid arthritis*
- Supervisor: Dr. Camilla Svensson, Department of Physiology and Pharmacology.

Australian National University (ANU) **Canberra, Australia**
National Youth Science Forum (NYSF) *Summer 2008*
Recipient of a scholarship to attend an international science camp, sponsored by the *Australian Rotary Club.*

Massachusetts Institute of Technology (MIT) **Cambridge, MA**
Research Science Institute (RSI) *Summer 2007*
Recipient of a scholarship to attend a summer research program for high school students, held at MIT and organized by the Center for Excellence in Education (CEE). I coordinated subject trials and performed data analysis on the performance of spotting threats in airport X-ray luggage screening.

- Project: *What does performance on one visual search task tell you about performance on another?*
- Supervisor: Prof. Jeremy Wolfe, Department of Brain and Cognitive Sciences, Harvard Medical School / Brigham and Women's Hospital.

Karolinska Institutet **Stockholm, Sweden**
Research Program in Biomedical Sciences *Summer 2006*
To understand mechanisms driving osteoporosis, I performed standard *in vitro* experiments to study the effect on osteoclasts when activated by the Liver X Receptor gene.

- Project: *Activation of Liver X Receptor affects the function and differentiation of osteoclasts*
- Supervisor: Dr. Kirsten Robertson, Department of Biosciences and Nutrition.

Publications

Nova N, Koelle K. Modeling the development of neutralizing antibody breadth in chronic-stage HIV infection. [*In preparation*]

Nova N, Ashcroft P, Iwasa Y, Michor F. Stochastic tunneling of three mutations in a population of cancer cells. [*In preparation*]

Nova N, Alstergren P, Svensson C. Chronic inflammation and pain – assessment of c-Fos and ATF-3 as markers of spinal neuronal activity in a pain model of rheumatoid arthritis. Master's thesis, Karolinska Institutet, June 2012. Access: `edu.ofa.ki.se/examensarbete/detail.asp?Id=343`

Van Wert M, Nova N, Horowitz T, Wolfe J. What does performance on one visual search task tell you about performance on another? Journal of Vision. 2008;8(6):312.

Awards & Scholarships

2013: Google Grant – *Women in Tech Conference and Travel Grant*

2011: *Erasmus Mundus Scholarship* – An EU grant for university studies in Europe.

2008: *Australian Rotary Club Scholarship* – to attend National Youth Science Forum science camp at ANU.

2007: First Prize in the Swedish National Science Fair – *Knut and Alice Wallenbergs Scholarship* to attend Research Science Institute at MIT.

Talks & Conferences

Epidemics - 5th International Conference of Infectious Disease Dynamics **Clearwater, FL**
Hilton Clearwater Beach *Dec 1 - 4, 2015*

Triangle Center for Evolutionary Medicine Symposium **Durham, NC**
The Solution Center in Research Triangle Park *Nov 17 - 18, 2015*
Poster presentation. Title: *Modeling the development of neutralizing antibody breadth in chronic-stage HIV infection*

30th Jubilee Symposium of Research Program in Biomedicine **Stockholm, Sweden**
Karolinska Institutet *June 8, 2015*
Invited speaker. Title of talk: *Mathematical Modeling in the Biosciences*

REU Summer Program in Mathematical Biology **Greensboro, NC**
University of North Carolina at Greensboro (UNCG) *June 2, 2015*
Invited speaker. Title of talk: *Mathematical Modeling of Cancer and Infectious Diseases*

Ecology & Evolution of Infectious Diseases (EEID) Conference **Athens, GA**
University of Georgia *May 26 - 29, 2015*

Mathematical Biosciences Institute – Evolutionary Game Theory Conference **Columbus, OH**
Ohio State University *April 26 - May 1, 2015*

Mathematical Biology Colloquium **Durham, NC**
Duke University *Spring 2015 – present*
Attending a journal club with weekly seminar series with guest speakers from various universities.

EuroBSDcon 2013 Conference **St. Julian's, Malta**
Google Women in Tech Scholar *Sep 26 - 29, 2013*

Research in Medical Sciences Symposium **Stockholm, Sweden**
Karolinska Institutet *Aug 25 - 26, 2010*
Poster presentation. Title: *Assessment of c-fos as a marker of spinal neuronal activity in a pain model of rheumatoid arthritis*

Work

Research Academy for Young Scientists (RAYS) **Strängnäs, Sweden**
Committee Member, Mentorship Director, Speaker *2011 – 2013*
Helped found and run a prestigious research program for high school students in Sweden.

EDSA Research Program **Dublin, Ireland**
Co-founder *2010 – 2011*
President and co-founder of a research program for dental students in Europe, supported by the European Dental Students' Association (EDSA).

Medical University of Vienna **Vienna, Austria**
Surgical Assistant *Summer 2010*
Admitted to a four week medical program to assist physicians/surgeons at the General Hospital (AKH). Organized by the International Federation of Medical Students' Association (IFMSA).
- Department of Cranio-, Maxillofacial and Oral Surgery, General Hospital (AKH)
- Supervisor: Prof. Dr. Dr. Rolf Ewers.

Swedish Federation of Young Scientists (FUF) **Stockholm, Sweden**
Committee Member *2008 – 2009*
On the executive committee for running the annual Swedish National Science Fair for high school students. I was asked to serve on the committee the year after I won the first prize.

Teaching

Research Academy for Young Scientists (RAYS) **Strängnäs, Sweden**
Class in Scientific Paper Writing *Summer 2013*

Computer Skills

Advanced: Python, HTML/CSS/JS, LaTeX, Gimp

Intermediate: Matlab, C, C++, Mathematica, Prism, Blender, ImageJ

Basic: Java, R, Django, Node.JS, BSD

Languages

Proficient: Swedish, English, Czech, Polish — *Native Proficiency*

Intermediate: Spanish — *Conversational*

Audited courses

Harvard University
Applied Mathematics 141r. Mathematical Modeling of Cancer — *Spring 2015*
Taught by Prof. Franziska Michor

edX-courses

Dynamics — **2.03x**
MITx — *2013 edX*
Taught by Prof. David Gossard
Grade: A

Neuronal Dynamics — **BIO465x**
École Polytechnique Fédérale de Lausanne — *2013 edX*
Taught by Prof. Wulfram Gerstner
Grade: A

Electricity & Magnetism — **PHYS102x**
RICEx — *2013 edX*
Taught by Assoc. Prof. Jason Hafner
Grade: A