

Nicole Nova | Curriculum Vitae

Mail: Box 90338, Room 137, 125 Science Drive, Durham, NC 27708
Office: 251 Biological Sciences Building, Duke University | **Phone:** (502) 203-1422
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 <i>Associate in Research</i> Department of Biology, Koelle Research Group. Working on mathematical modeling of the eco-evolutionary dynamics of HIV and the immune system.	Durham, NC 2015 – present
DANA-FARBER CANCER INSTITUTE / HARVARD SCHOOL OF PUBLIC HEALTH <i>Research Trainee</i> Department of Biostatistics and Computational Biology, Michor Lab. Worked on an abstract stochastic population genetics model applied in cancer development.	Boston, MA 2014 – 2015

Education

ROYAL INSTITUTE OF TECHNOLOGY (KTH) <i>Electrical Engineering</i> GPA 3.93/4.00	Stockholm, Sweden 2012 – 2013
KAROLINSKA INSTITUTET <i>M.Sc. in Dental Surgery</i> <ul style="list-style-type: none">Thesis: <i>Chronic inflammation and pain: Assessment of c-Fos and ATF-3 as markers of spinal neuronal activity in a pain model of rheumatoid arthritis</i>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).	Stockholm, Sweden 2007 – 2012
INTERNATIONAL ENGLISH GYMNASIUM <i>Diploma of Natural Sciences</i> GPA 20.0/20.0 + honors 2.5/2.5 - including extended curriculum by 300 credits (2800/2500). Award: Valedictorian	Stockholm, Sweden 2004 – 2007

Research Experience

ROYAL INSTITUTE OF TECHNOLOGY (KTH) <i>Robotics Programmer</i> Worked in a team of five KTH students to deliver a functioning hardware/software robot prototype balancing and moving on two wheels. <ul style="list-style-type: none">Project: <i>Autonomous Robot Accomplishing Standstill Balance and Forward Motion Using Segway Technology</i>Supervisor: Dr. Cristian Rojas, Automatic Control Laboratory, School of Electrical Engineering.	Stockholm, Sweden Spring 2013
KAROLINSKA INSTITUTET <i>Research Program in Medical Sciences</i> 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. <ul style="list-style-type: none">Project: <i>Assessment of c-fos as a marker of spinal neuronal activity in a pain model of rheumatoid arthritis</i>Supervisor: Dr. Camilla Svensson, Department of Physiology and Pharmacology.	Stockholm, Sweden Summer 2010

AUSTRALIAN NATIONAL UNIVERSITY (ANU)*National Youth Science Forum (NYSF)***Canberra, Australia***Summer 2008*

Recipient of a scholarship to attend an international science camp, sponsored by the *Australian Rotary Club*.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)*Research Science Institute (RSI)***Cambridge, MA***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 performed subject trials and 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*Research Program in Biomedical Sciences***Stockholm, Sweden***Summer 2006*

I performed standard *in vitro* experiments to study the effect on osteoclasts when activated by the Liver X Receptor gene, to understand mechanisms driving osteoporosis.

- 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 the research program Research Science Institute at MIT.

Talks & Conferences**Mathematical Biology Colloquium**

DUKE UNIVERSITY

Durham, NC*Spring 2015 – present*

Attending a journal club with weekly seminar series with guest speakers from various universities.

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

Triangle Center for Evolutionary Medicine Symposium THE SOLUTION CENTER IN RESEARCH TRIANGLE PARK Poster presentation. Title: <i>Modeling the development of neutralizing antibody breadth in chronic-stage HIV infection</i>	Durham, NC Nov 17 - 18, 2015
30th Jubilee Symposium of Research Program in Biomedicine KAROLINSKA INSTITUTET Invited speaker. Title of talk: <i>Mathematical Modeling in the Biosciences</i>	Stockholm, Sweden June 8, 2015
REU Summer Program in Mathematical Biology UNIVERSITY OF NORTH CAROLINA AT GREENSBORO (UNCG) Invited speaker. Title of talk: <i>Mathematical Modeling of Cancer and Infectious Diseases</i>	Greensboro, NC June 2, 2015
Ecology & Evolution of Infectious Diseases (EEID) Conference UNIVERSITY OF GEORGIA	Athens, GA May 26 - 29, 2015
Mathematical Biosciences Institute – Evolutionary Game Theory Conference OHIO STATE UNIVERSITY	Columbus, OH April 26 - May 1, 2015
EuroBSDcon 2013 Conference <i>Google Women in Tech Scholar</i>	St. Julian's, Malta Sep 26 - 29, 2013
Research in Medical Sciences Symposium KAROLINSKA INSTITUTET Poster presentation. Title: <i>Assessment of c-fos as a marker of spinal neuronal activity in a pain model of rheumatoid arthritis</i>	Stockholm, Sweden Aug 25 - 26, 2010

Work

Research Academy for Young Scientists (RAYS) <i>Committee Member, Mentorship Director, Speaker</i> Helped found and run a prestigious research program for high school students in Sweden.	Strängnäs, Sweden 2011 – 2013
EDSA Research Program <i>Co-founder</i> President and co-founder of a research program for dental students in Europe, supported the European Dental Students' Association (EDSA).	Dublin, Ireland 2010 – 2011
MEDICAL UNIVERSITY OF VIENNA <i>Surgical Assistant</i> 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). <ul style="list-style-type: none"> Department of Cranio-, Maxillofacial and Oral Surgery, General Hospital (AKH) Supervisor: Prof. Dr. Dr. Rolf Ewers. 	Vienna, Austria Summer 2010
Swedish Federation of Young Scientists (FUF) <i>Committee Member</i> 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.	Stockholm, Sweden 2008 – 2009

Teaching

Research Academy for Young Scientists (RAYS) <i>Class in Scientific Paper Writing</i>	Strängnäs, Sweden Summer 2013
---	---

Computer Skills

Advanced: PYTHON, HTML/CSS/JS, L^AT_EX, 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