

# MARIA E. FICHERA, PH.D.

Eastern University  
Department of Biology  
1300 Eagle Road  
St. Davids, PA 19087

Office phone (610) 341-1779  
FAX (610) 341-1460

*mfichera@eastern.edu*  
Cell: 610-506-4687

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**EDUCATION:** **University of Pennsylvania**, Philadelphia, PA  
Ph.D. in Cell and Molecular Biology, 1998. Mentor: Dr. David S. Roos

**State University of New York at Buffalo**  
**School of Medicine and Biomedical Sciences**,  
M.D./Ph.D. program, 1991-1992.

**Manhattan College**, Riverdale, NY  
B.S. in Biology, 1991, summa cum laude, 3.98 GPA

**AWARDS:** Provost Fellowship, Eastern University, May 2007  
Professor of the year, Eastern University, May 2007  
Academic Research Enhancement Award from NIH, 1 R15 AI49962-01  
Dinitroaniline herbicide resistance in *Toxoplasma gondii*  
\$107,500 (7/15/01-6/30/04)  
Stauber student award for best paper, NJ Society for Parasitology, 1998  
Young Investigator's Award, Marine Biological Laboratories, Sept. 1997  
NIH Training Grant, 1992-95  
Joseph Gunn Award, 1991; Mendel Award for Biology, 1991  
Stipend from Juvenile Diabetes Research Foundation, 1990

**MEMBERSHIPS:** International Society of Protistologists, 2007  
CUR (Council on Undergraduate Research), 2003-2011  
NAAHP (National Association of Advisors for Health Professions), 2003-  
AIBS (American Institute of Biological Sciences), 2002  
NABT (National Association of Biology Teachers), 2000-2010  
ASM (American Society for Microbiology), 1999  
ASA (American Scientific Affiliation), 1998-present  
NEAAHP (Northeast Association of Advisors for Health Professions),  
1998-present  
Mid-Atlantic Association of College Biologists, 1998  
AAAS (American Association for the Advancement of Science), 1997  
International Alliance of Teacher Scholars (IATS), 1997  
Beta Beta Beta, Sigma Xi, Phi Beta Kappa, 1991

**ADMINISTRATIVE  
EXPERIENCE:**

**Biology department chairperson, Dept. of Biology**

**Eastern University, July 2008-present**

Department consists of 5 full-time faculty, 1 half-time and 1-2 adjuncts.

**Premedical advisor, Eastern University, 1998-present**

Assist up to 10 students yearly with their applications to medical, dental and physician assistant schools

**Chair of Middle States subcommittee on "Students",  
Eastern University, 2000-2001**

Delegated tasks and co-authored report for Middle States.

**TEACHING  
EXPERIENCE:**

**At Eastern University, St. Davids, PA**

**Professor of Biology, Aug. 2010- present**

**Associate Professor of Biology, Aug. 2004- 2009**

**Assistant Professor of Biology, Aug. 1998- 2003**

- **BIOL 216: Introduction to Microbiology** (team-taught, Spring 2015)
- **BIOL 151: General Biology I** (taught 1998-2005)
- **BIOL 152: General Biology II** (team-taught, course leader, every spring since 2006)
- **BIOL 310: Animal Physiology** (each year since 1999)
- **BIOL 311: Cell Biology** (every fall since 2005)
- **BIOL 344: Molecular Biology** (every spring since 2006)
- **BIOL 426: Senior Thesis (Research)** since 1999
- **BIOL 205: Biology for Elementary Education (non-majors course)**, taught 1998- 2003
- **CHEM 340: Macromolecules** (Advanced Biochemistry), fall 1998, spring 2001, fall 2001, 2003. Designed course for senior students. Lecture but also journal presentation and discussion with students (seminar-style).
- **Youthworks 2000, summer program with Philadelphia Futures and Eastern College**, July 11-Aug. 4, 2000. Organizer and teacher. Along with the other Biology professors, participated in scientific investigations into ecosystems with 25 urban high school youth.

**Adjunct Instructor, Aug. 1997 - May 1998**

**Dept. of Biology, Eastern College, St. David's, PA**

- **Bio. 205: Biology for Elementary Education**

**Teaching Assistant, Dept. of Biology, University of Pennsylvania**

- **General Biology 101**, fall 1994 (majors course).
- **Molecular Biology of Life**, fall 1996 (similar to 101, but with strong emphasis on Molecular Biology -- majors course).
- Lab preparation and instruction. Design of quizzes and several exam questions. Student evaluation, including assessment of writing skills.

**CURRENT RESEARCH:**

Present research with undergraduates at Eastern University investigates the molecular nature of herbicide resistance in *Toxoplasma gondii*. Work with 2-4 students each year. Sabbatical granted from Jan. to May, 2014 to continue work on this project.

**GRANTS:**

(also see under "AWARDS" - NIH R15 AI49962-01-AREA grant)  
Dinitroaniline herbicide resistance in *Toxoplasma gondii*  
and Provost Fellowship, 2007

**RESEARCH SKILLS**

Tissue culture: Establishment, growth and maintenance of fibroblast cells and HeLa cells; propagation of *Toxoplasma gondii* parasites

Pharmacology: Development of *in vitro* assays to examine drug effects on parasite replication, multidimensional drug assays

Cell Biology/Biochemistry: Microinjection of cells, immunofluorescence assays, fluorescence microscopy, polyacrylamide gel electrophoresis, two-dimensional gel analysis, Western blotting, protein expression/purification

Molecular Biology: DNA isolation and cloning, PCR, DNA sequencing, Southern blotting, RNA isolation, RT-PCR, site-directed mutagenesis

Genetics: Genetic manipulation of *Toxoplasma*, insertional mutagenesis; creation, identification and isolation of drug-resistant mutant parasites

**PUBLICATIONS:**

Fichera, M.E. "God's call to stewardship through teaching and research."  
**Submitted but not accepted**/*Perspectives on Science and Christian Faith* in May 2014.

**Fichera, M.E.** Choosing Eastern for Pre-med is just what the doctor ordered. Fall/Winter 2006: *Spirit: The News Magazine of Eastern University*.

**Fichera, M.E.** Witnessing God's creation under the microscope. Fall/Winter 2006: *Spirit: The News Magazine of Eastern University*.

**Fichera, M. E.** and D. S. Roos. 1997. The apicoplast: a novel drug target in protozoan parasites. *Nature* **390**: 407-409.

Tilley, M., **M. E. Fichera**, M. E. Jerome, D. S. Roos, and M. W. White. 1997. *Toxoplasma gondii* sporozoites form a transient parasitophorous vacuole that is impermeable and contains only a subset of dense-granule proteins. *Infection and Immunity* **65**: 4598-4605.

**Fichera, M. E.**, M. K. Bhopale, and D. S. Roos. 1995. *In vitro* assays elucidate peculiar kinetics of clindamycin action against *Toxoplasma gondii*. *Antimicrob. Agents Chemother.* **39(7)**: 1530-1537.

Laychock, S. G., **M. E. Modica**, and C. Cavanaugh. 1991. L-arginine stimulates cyclic guanosine 3':5' monophosphate formation in rat islets of Langerhans and RINm5F insulinoma cells: evidence for L-arginine:nitric oxide synthase. *Endocrinology* **129**: 3043-3052.

## **CONFERENCES/ PRESENTATIONS: Talks and Abstracts**

Annual meeting of the International Society of Protistologists - Providence-Warwick, Rhode Island, August 4-9, 2007. Abstract and oral presentation. **Fichera, M.E.** Action of dinitroaniline herbicides in the protozoan parasite *Toxoplasma gondii*.

Annual Meeting of the Pennsylvania Academy of Science, Camp Hill, PA April 9-10, 2005. Oral presentation.

**Fichera, M.E.**, Ayana, M., and Heino, A.E. 2005. Action of dinitroaniline herbicides in the protozoan parasite *Toxoplasma gondii*. Abstract published in Abstract and Index Issue of the *Journal of the Pennsylvania Academy of Science*, vol. 78, March 2005.

Seventh International Congress on Toxoplasmosis, May 23-27, 2003. Brief talk and poster presentation.

Dinitroaniline herbicide resistance in *Toxoplasma gondii*.

**Fichera, M.E.**, Oh, J., Lilley, P., Brown, E. and Roos, D.S. 2003.

NJ Society for Parasitology Annual Meeting  
Princeton, NJ, April 4, 1998. Antibiotic targeting of the plastid genome in *Toxoplasma gondii*. **Fichera, M. E.** and D. S. Roos

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Molecular Parasitology Meeting VIII at Marine Biological Laboratory,  
Woods Hole, MA, Sept. 24-28, 1997

Antibiotic targeting of the plastid genome in *Toxoplasma gondii*.

**Fichera, M. E.** and D. S. Roos

47th Annual Meeting of the Society of Protozoologists

Cleveland, Ohio, June 24-29, 1994

Doomed to die -- replication of intracellular *Toxoplasma gondii*  
following clindamycin or macrolide treatment.

**Modica, M. E.** and D. S. Roos

**Other Talks**

Eastern University Faculty Development workshop presentation with  
Dr. Jeanne Bundens: "Engaging the highly prepared while helping the  
under-prepared." May 9, 2018.

Eastern University Baccalaureate address- "Who is your anchor?" – May  
4, 2018.

Invited presentation at University of Pennsylvania Career Services, PA,  
April 21, 2015. "Wearing many hats (and drinking lots of coffee) -- Life  
as a professor and department chair at a small university."

Panel member for political debate for 2012 presidential election-2012.

Panel member for faculty discussion on grading, Eastern University –  
April, 2011

"Witnessing God's creation under the microscope – science as a gift and  
call to stewardship" – delivered in November, 2010 and Jan. 2009 to  
leaders of First Presbyterian Church of Pottstown on their annual  
retreat. Invited to speak by Pastor Carter Lester.

Presentation at University of Pennsylvania Career Services, April 15,  
2003. "How to survive *and* enjoy your first year as a college professor!"

Presentation to the Board of Directors, Eastern University, Oct. 2002  
Involving students in research on *Toxoplasma gondii*

Panel member for Perspectives Forum on Euthanasia, Eastern  
University, September 2002

Panel member for Perspectives Forum on Denominational Diversity  
Eastern University, September 2001

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Seminar at St. Joseph's University, Philadelphia, PA  
November 15, 2000. Doomed to die – identification of drug targets in  
the protozoan parasite *Toxoplasma gondii*.

Research presentation on *Toxoplasma gondii* for Academic Community  
Festival, Eastern College, Oct. 1999

Talk at Interview Day for the Biology Graduate Group, University of  
Pennsylvania, March 1997

Seminar at Eastern College, St. David's, PA, sponsored by American  
Chemical Society and Sigma Zeta, November 1996, 1997

Departmental lectures on thesis: June 1995, 1996, 1997, March 1998

**Posters/Abstracts**

24<sup>th</sup>, 21<sup>st</sup>, 19<sup>th</sup> and 18<sup>th</sup> Annual Saint Joseph's University Sigma Xi  
Student Research Symposium, St. Joseph's University, Philadelphia, PA,  
April 2007-2013. Abstract and poster presentation  
Action of dinitroaniline herbicides in the protozoan parasite  
*Toxoplasma gondii* (with student presenters).

Mensch C, **Fichera M**, and Lawton JA. "Heterologous Expression and  
Functional Characterization of Secretion and Nuclear Localization  
Signals in OrfM, a Potential Virulence-Associated Protein from the Plant  
Pathogen *Erwinia amylovora*."

Research Link 2000 Institute/Ferris State University, Big Rapids,  
Michigan. Aug. 12-15, 1999. "Experiencing Biology through Discovery"  
**M.E. Fichera** and M. Meyer

Molecular Parasitology Meeting VII at Marine Biological Laboratory,  
Woods Hole, MA, Sept. 15-19, 1996. The peculiar action of macrolide  
and lincosamide antibiotics against *Toxoplasma gondii* -- potential  
targets and mechanisms of action. **Fichera, M. E.** and D. S. Roos

Keystone Symposia in Molecular and Cellular Biology  
Molecular Basis for Drug Resistance in Bacteria, Parasites, and Fungi  
Park City, Utah, March 11-17, 1996 (*same title as above*)

**Abstracts only**

The 14<sup>th</sup> Annual Saint Joseph's University Sigma Xi Student Research Symposium – April 11, 2003 (students Brown and Lilley presented poster). Dinitroaniline herbicide resistance in *Toxoplasma gondii*  
**Fichera, M.E.**, Oh, J., Lilley, P., Brown, E. and Roos, D.S. 2003.

National 1999 Sigma Xi Forum  
Minneapolis, MN, Nov. 1999  
Making General Biology Student-Centered  
**Maria E. Fichera** and Marv Meyer

**Conference participant**

Melanin in Medicine – at Villanova University- sponsored by the Villanova's Minority Association for Pre-Health Students --April 13, 2018

CCAS (Council of College of Arts and Sciences) Seminar for Department Chairs/Heads, Feb. 21-23, 2013- Alexandria Virginia

NEEAP conference for Pre-med advisors  
Temple University School of Medicine --Jan. 2012

NEEAP conference for Pre-med advisors  
UMDNJ/School of Osteopathic Medicine --Jan. 8, 2005

Strategies for Success Science Workshop  
Montgomery County Community College --Feb. 2004

Mid-Atlantic Association of College Biologists  
Fall 2002 Regional Meeting, Eastern University, Oct. 2002

NABT Annual Convention, Orlando, Florida Oct. 25-28, 2000

Physiology Lab Workshop, Villanova University, PA, Feb. 26, 2000

ACT Assessment Workshop, Valley Forge, PA, Oct. 27, 1999

Syllabus Conference on Educational Technology  
Washington, DC, Nov. 5-6, 1998

Lilly Conference on College and University Teaching,  
Towson, Maryland, April 4-6, 1997

**ADDITIONAL  
EXPERIENCE:**

**At Eastern University:**

Chemistry Search Committee (Analytical Chemist), Jan.-May 2018

Faith and Learning Paper committee, since fall 2015-

Chair of Biology search committee (2 positions), fall 2011-spring 2012

Templeton Honors College Faculty Advising Committee, fall 2010-  
spring 2015

Organic Chemistry search committee, fall 2007-spring 2009

Panel for Faculty Workshop- discussed research in my discipline,  
May 2005

Biochemistry and Biology search committees, fall 2004

Co-chair Undergraduate Dean Search Committee, fall 2003-spring 2004

Faculty Personnel Committee,

Tenure and Promotion subcommittee, fall 2004-spring 2006

Policy subcommittee, fall 2002-2004

Chair for Middle States Task Force on Students, fall 2000-2001

Organize and chair meetings, oversee research, writing and editing of  
chapter on Admissions and Student Services

Pre-Med Club advisor, Sept. 1998-

Organized and established club on campus; visit medical school open  
houses, invite guest speakers etc.

Undergraduate Academic Policy and Curriculum Committee, Oct. 1999-  
Dec. 2001. Discuss and edit current curriculum and present to faculty

Faculty search committees (for Experimental Psychologist, Old  
Testament professor, and Exercise Physiologist), spring 2000

**At the University of Pennsylvania:**

- President of the Biology Graduate Student Association (BGSA), 1995-1997. Liaison between faculty and students.
- Organizer and active participant in the Biology Department's Interview Day for incoming graduate students, 1992-1997
- Member of committee to improve the quality of teaching assistants within the Biology Department, 1996: Drafted and revised guidelines for TAs in general biology lab courses.
- Cell and Molecular Admissions Committee, 1994-1995
- Cell and Molecular Guidance Committee, 1994-1995
- Graduate Student Association Council (GSAC), 1992-1993
- GSAC Multiculturalism Committee, 1992-1995

**OTHER:**

Leader of Bible Timeline (Jeff Cavins) though church, Jan.-April 2015  
Leader of "Why Catholic?" faith sharing group, Feb. 2011- 2015

Treasurer, Home and School Association, Mother of Divine  
Providence/Mother Teresa Regional Catholic School,  
Sept. 2010- 2015

Marriage Encounter, presenting team couple (with husband)- July  
1999-present

Respect Life Committee, Mother of Divine Providence Parish, 2007-  
present