

Curriculum Vita

Christy Anne MacKinnon, Ph.D.
Professor of Biology
December 31, 2010

Address

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Education:

Colorado State University, Ph.D., Plant Biology	1985
Michigan State University, MS, Plant Biology	1979
University of Michigan-Flint, BS in Biology	1977

Professional Experience:

Sister Joseph Marie Armer Chair present	August 2009-
Chair, Biology Department	November 2007-present
Professor of Biology, University of the Incarnate Word San Antonio, TX	2001-present
Sr. Joseph Marie Armer Endowed Chair of Biology University of San Antonio, TX	2000-2002
Associate Professor, University of the Incarnate Word San Antonio, TX	1995-2000
Assistant Professor, Incarnate Word College San Antonio, TX	1991-1995
Assistant Professor, Texas Wesleyan University Fort Worth, TX	1990-1991
NIH Postdoctoral Fellow, In Vitro Mutagenesis and Protein Folding, UTHSC-San Antonio, TX	1988-1990
NIH Postdoctoral Trainee, Molecular Carcinogenesis UT-MD Anderson System, Science Park, Smithville, TX	1986-1998

Courses Taught

Undergraduate:

Unity of Life, Diversity of Life, Genetics, Texas Flora, Scientific Inquiry, Senior Synthesis, Anatomy & Physiology I Laboratory; Selected Topics: Research in Genomics.

Graduate:

Cell Differentiation, Structure & Function of Proteins, Structure & Function of Nucleic Acids, Selected Topics in Ecology & Evolution, Selected Topics in Cellular Biology.

Scholarly Activities: (1991-2005)

Book Chapters

MacKinnon, C., Fowles, J., Gonzales, E., McCormick, B., & Thomann, Wm. (2005). *The impact of state standards on teacher professional development and student performance in middle school science*. The Impact of State and National Standards on K-12 Science Teaching. Information Age Publishing, Greenwich CT., pgs 363-390.

McCormick, B. & MacKinnon, C. (2004). *Changing the culture of an introductory biology course*. Reform in Undergraduate Science Teaching for the 21st Century. Eds. Dennis W. Sunal, Emmett L. Wrigth & Jeanelle Bland Day. InfoAge Publishing, Greenwich, CT. pgs. 393-408.

Sunal, D.W., MacKinnon, C., Raubenheimer, C.D., McAlister, D.A. & F. Gardner. (2004). *A case study of a national undergraduate science reform effort*. Reform in Undergraduate Science Teaching for the 21st Century. Eds. Dennis W. Sunal, Emmett L. Wrigth and Jeanelle Bland Day. InfoAge Publishing. Greenwich, CT. pgs. 225-239.

Publications: (1991-2005)

Kerr, S. F., Merkelz, R., MacKinnon, C. (2000). *Further support for a palaearctic origin of Leishmania*. Mem. Inst. Oswaldo Cruz, Rio de Janeiro, Vol 95 (4):579-581.

Sims, M., Tryon, V.V., Nall, B.T., MacKinnon, C. (1998). *Polymerase chain reaction mutagenesis and automated DNA sequencing*. Association of Biology Laboratory Education, Conference Proceedings, Volume 20.

Veerarghavan, S., Rodriguez-Ghidarpour, S., MacKinnon, C., McGee, Wm., Pierce, M., Nall, B.T. (1995). *Prolyl isomerase as a probe of stability of slow-folding intermediates*. Biochemistry, 34:12892-12902.

MacKinnon, C., & Black, C. (1994). *College science education and innovative teaching*. In: Toward the 21st Century: the future of teaching and learning, Eds. M. Walschak, and A. Mondriquez. Incarnate Word College, San Antonio, TX.

MacKinnon, C. (1993). *IACUC's at undergraduate colleges at colleges and universities*. Council on Undergraduate Research Newsletter. 13(4):53058.

MacKinnon, C., Veeraraghavan, S., Krieder, I., Allen, M.J., Liggins, J.R., Nall, B.T.* (1991). *Proline isomerization and protein folding*. In: *Chemical aspects of enzyme biotechnology*. Fundamentals, Ed. A.E. Martel. Plenum, New York, p53-64. *Primary author.

Web Published: (2007)

Investigative Case Study: Stressed Out! BioQuest Curriculum Consortium.

http://www.bioquest.org/icbl/allendale_08_07/workshop_forms/icbl_details.php?project_id=159

Presentation of Papers (1991-2005)

Moore, M.R., & MacKinnon, C (2009) Wonder-filled, playful nature experiences for the schoolyard habitat. Paper presented at the 2009 Annual Meeting of the National Association for the Education of Young Children November 16-18, Washington, D.C. Presentation materials published at: <http://www.annualconference.naeyc.org/presenters>.

Moore, M. R., & MacKinnon, C. (2008). *Backyard Science: Developing an appreciation for the wonders of nature right outside your doorstep*. Paper presented at the 2008 Annual Meeting of the National Association for the Education of Young Children November 5-7, Dallas, TX. Presentation materials published at: <http://www.annualconference.naeyc.org/presenters>.

MacKinnon, C., Fowles, J., McCormick, B. (2005). *Effectiveness of a graduate program in multidisciplinary sciences for professional development and student performance*. Interactive poster session at the annual conference of the National Association for Research in Science Teaching April 4-6, 2005, Dallas, TX.

McCormick, B., & MacKinnon, C. (2005). *Changing the culture of an introductory biology course*. Paper presented at the annual meeting of the American Education Research Association April 11-15, 2005, Montreal, Canada.

MacKinnon, C., Dial, K. & Raubenheimer, C.D. (2003). *Effects of Professional Development on University Faculty on Pedagogical Content Knowledge and Student Learning*. Paper presented at the annual conference of the American Educational Research Association April 21-25, 2003, Chicago, IL.

Sunal, D., Sunal, C., Whitaker, K., Odell, M. & MacKinnon, C. (2003). April). *The effect of standards-based reforms in university courses on undergraduates'*

science knowledge. Paper presented at the annual conference of the American Educational Research Association April 21-25, 2003, Chicago, IL.

MacKinnon, Christy. (2003). *Best Practices: Assessment of Online Discussion Boards on Students Higher Order Thinking Skills*. Paper presented at the annual conference of the National Center for Online Learning Research April 23, 2003, Chicago, IL.

Thomann, William & MacKinnon. (2002). *Interdisciplinary graduate studies in earth science at the University of the Incarnate Word*. Paper presented at the 105th Annual Meeting of the Texas Academy of Sciences, February, 2002. Laredo, TX.

McCormick, B. & MacKinnon, C. (2002). *Student perception of classroom environment in a learner-centered introductory biology course*. Paper presented at annual conference of the National Association of Research in Science Teaching April, 2002, New Orleans, LA.

MacKinnon, Christy. (2001). *Problem solving in a university genetics course*. Invited seminar speaker, Michigan State University Division of Science and Mathematics February, East Lansing, MI.

McCormick, B.D., MacKinnon, C., & Jones, E. R. L. (1999). *Evaluation of attitude, achievement, and classroom environment in a learner-centered introductory biology course*. Paper presented at the annual meeting of the National Association of Research in Science Teaching March, Boston, MA. (ERIC Document Reproduction Service No. ED453049).

McCormick, B., Barker, J. & MacKinnon, C. (1999). *Integrating Life Science and Space Science, Mathematics, and Informational Technology: Activities for Pre-Service Teachers*. Tutorial presented at International Conference on Mathematics and Science Education & Technology March, 1999, San Antonio, TX.

MacKinnon, C., Griffith, E. C., & Fowles, J. (1999). *Web Page Construction by Middle School Science Teachers: Assessment of Content Knowledge and Classroom Implementation*. Poster presented at International Conference on Mathematics and Science Education & Technology March, 1999, San Antonio, TX

McCormick, B. & MacKinnon, C. (1998) *Redesigning an introductory biology course: Life-Space Science Activities*. Invited presentation, Project NOVA Workshop, University of Houston. May 26-28, Houston, TX

Barker, J. & MacKinnon, C. (1998). *Integrating mathematics and science in the elementary school classroom*. 45th Annual Conference for the Advancement of Mathematics Teaching July 22-24, San Antonio, TX

MacKinnon, C. (1998). *How to prepare a successful grant application to Project NOVA*. Invited presentation to National Science Teachers Association Annual Meeting April 15, Las Vegas, NV

MacKinnon, C., Barker, J.S., Moore, M.R., Traylor, R.D., Beauford, J. (1998). *Integrated mathematics and science: A curriculum for pre-service elementary teachers*. National Association for the Research in Science Teaching April 19-22, San Diego, CA.

MacKinnon, C. & Barker, J. (1997). *Modeling the Integration of Mathematics and Science*. Paper presented at the Annual Conference School Science and Mathematics November 14-16. Milwaukee, WI

MacKinnon, C. & Fowles J. (1997). *Constructing a Biology I Curriculum*. Paper presented at the Conference for the Advancement of Science October 16-18, Fort Worth TX.

Collins, J., G., Ghidapour, S.R., Nall, B.T., MacKinnon, C. (1996) *Construction of mutations at position 70 in cytochrome c by random oligonucleotide site-directed mutagenesis and their effects on protein stability*. Paper presented at the National Minority Research Symposium November 13-17, Miami, FL.

MacKinnon, C. (1995) *Adult learning strategies in a genetics course*. Paper presented at the National Association of Science Teachers, Society of College Science Teachers Area Meeting December, 13-16, San Antonio, TX.

MacKinnon, C., Thomann, Wm., McCormick, B. (1995) *Collaboration with Local Education Agencies: Enhancing Science Education*. Paper presented at the Association of General and Liberal Studies October 12-14, 1995. San Antonio, TX.

Black, C, & MacKinnon, C. (1994) *Understanding and meeting the learning needs of urban minority undergraduate students in science and technology*. Paper presented at The Minority Student Today Conference October 9-12, 1994, San Antonio, TX.

McCormick, B., Kerr, S., and MacKinnon, C. (1994). *Observational investigations of systematics, physiology and behavior of vertebrates in a living collection*. Laboratory workshop presented at the 16th Annual Workshop/Conference of the Association of Biology Laboratory Education (ABLE) June 7-11, 1994, Emory U., Atlanta, GA.

Funded Research: (1991-2005)

Co-Principle Investigator, NASA Mathematics, Science and Technology Awards for Teacher and Curricular Enhancement Program (MASTAP)

1999-2002

Texas Higher Education Coordinating Board, Eisenhower Math and Science Program, Professional Development Program, Division of Higher Education. Science Institutes in Geophysics, Ecology, Molecular Biology, Cell Biology, and Multidisciplinary Sciences. (Principle and/or Co-Principle Investigator)	1994-2002
Participating Scientist, NIH Doctoral Bridge Program UTHSC-SA and IWC.	1994-1996 1999-2001
San Antonio Botanical Gardens and the Center for Plant Conservation.	1994- 1996
<u>Research in Progress:</u>	
Accepted as university participant, Genome Education Project, Washington University, St. Louis, MO. Responsibility as participant is to engage undergraduates in a gene annotation project of Drosophila dot chromosome, Washington University, St. Louis, MO.	2010
Investigation of an aging gene in model system, C. elegans, in collaboration with Dr. Pamela Larsen, UTHSC-SA	2009-present
MacKinnon, Christy and Mary Ruth Moore. Wild as a Weed, Wildflower Indeed! Preschool children's book, in progree	2007-2009
<u>Professional Development/Application:</u>	
Accepted as participant in the Dolan DNA iPlant Faculty Workshop, University of Texas at Austin in Austin, May 7-8, 2010.	2010
Attended Genomics Education Partnership TA and Faculty Workshop Annotation and Sequence Enhancement, Washington University, June 20-25, 2010, St. Louis, MO.	2010
Attended UIW Faculty Research Development External Grant Pre-proposal WorkshopSeries.	2010
Attended Council of Colleges of Arts & Sciences Seminar for Department Chairs, July 8-10, Chicago, IL	2010
Co-presenter with Dr. Susan Hall, Classroom Communication UIW Cooperative Learning Workshop	2009
Attended Dolan DNA Learning Center's Silencing Genome Workshop; Cold Spring Harbor Genome Access Course	2009

Research Associate, National Science Foundation National Study of Education in Undergraduate Science (NSEUS)	2008
Accepted Participant Undergraduate Workshop, 2008 Annual Meeting American Society of Human Genetics November 11-14, Philadelphia, PA.	2008
Attendance at Ninth Annual Congress on Children, "Nature of Childhood." September 21, 2007. San Antonio, Texas	2007
Accepted Participant, National Science Foundation, BioQuest Curriculum Consortium. Investigative Case Studies: Context for Active Students Engaged in Science August 6-8, Grand Rapids, Michigan.	2007
Accepted Participant: National Science Foundation Frontiers in Genomics: RNA Interference and Genome Annotation. June 2006, Oklahoma City, OK.	2006
Contributor, NASA Project NOVA Final Report	2006
Participant: Title V Workshops on Cooperative Learning	2005-2006
Participant: Summer Institute for Social Justices	2006
Sabbatical Leave	Spring 2004
Co-Presenter, UIW-Project NOVA Updates, NOVA Leadership Conferences.	1997-2003
Invited Workshop Presenter, Contemporary Topics in Evolution, Northside ISD, San Antonio, TX.	1999
Invited Reviewer, Association for the Education of Science Teachers, Annual Conference.	1998
<u>Extramural Service:</u>	
Science Fair Judge, Bowden Elementary School	2008
Science Fair Judge, Bowden Elementary School	2007
Teacher, Crestview Baptist Church Vacation Bible School, "SonForce Kids: Special Agents for God	2007

Invited Presenter, San Antonio Association of Former Intelligence Officers: RNA Interference as a New Mechanism for gene Regulation.	2007
Science Fair Judge, Bowden Elementary School	2006
Mentor, Northside Independent School District, Gifted and Talented Program; Independent Study Mentorship.	1998-1999
Science Fair Judge, Archdiocese of San Antonio,	1995-1996
Elected Secretary, Alamo Chapter of Sigma XI, The Scientific Research Society.	1994-1996
Member, National Science Foundation Urban Systemic Initiative Proposal Task Force Committee, UTSA.	1994-1996
Invited Speaker, Writing to Win Workshop Sponsored by the Texas Alliance for Science, Technology and Mathematics Education. April, San Antonio.	1995
Invited Reviewer, National Science Education Standards Texas Education Agency and the NSF State Systemic Initiative, February, San Antonio, TX.	1995
Expanding Your Horizons, Math/Science Network Science Workshop Presenter, February San Antonio, TX.	1993
Hispanic MBA Summer Enrichment Program, Science and Math Instructor, IWC.	1993
<u>Intramural Service:</u> Member, Pharmacy Search Committee	2009
Summer Advising	2009
Revised, updated, and taught, BIOL 6310, Topics in Cellular and Molecular Biology for Teacher Quality Grant Program	2009
Invited member, UIW Actualizing the Mission Committee	2008-2009
UIW Summer Advising	2007-present
Chair, Department of Biology	November 2007-present

Chair, Biology Search Committee	2007-2008
Invited member, UIW Scholarship Committee	2007-2008
Member, Chemistry Search Committee	2006-2007
Mentor, Dr. David Coleman	2007-2008
Course Coordinator, BIOL 1402, Unity of Life & Lab	2005-present
Mentor, Faculty and Graduate Student Instructors for BIOL 1402, Unity of Life & Lab	2005-present
Member, Chemistry Search Committee	2006, 2007
Summer Advising	2006
Member, Schedule Review Committee	2005
Appointed Member, Conference Planning Committee, "Fearfully and Wonderfully Made: The Human Genome: Ethical and Social Issues" Conference sponsored by Sisters of Charity of the Incarnate Word, Christus Health, University of the Incarnate Word, Oblate School of Theology.	2002-2005
Institutional Review Board Representative, School of Mathematics, Science & Engineering	2004-2006
Member of the "First Year Engagement" Committee (Student Retention)	2005
Co-Chair, Arbitration Task Force.	2003
Co-Chair, UIW Employee Campaign	1997-2002
Member, Science Search Committees	1993, 96, 2002
Comprehensive Examiner, Thesis Committee Member UIW Biology Graduate Program	1997-2001
Chair, UIW Faculty Affairs Committee	1999-2001
Member, UIW Graduate Council	1997-1999
Member, College-Wide Teacher Education Committee	1996-1999

Member, Faculty Workshop Organization Committee	1998
Appointed Member, Educational Effectiveness Team	1995-1997
Presenter, Faculty Seminar Series	1995-1996
Radiation Safety Officer	1993-1996
Organizer, Biology Seminar Series	1994-1996
Biology Discipline Coordinator	1993-1996
Chair, Institutional Animal Care and Use Committee	1991-1996
Member, Women's History Month, and Black History Month	1994-1995
Authored IWC Biology Graduate Student Handbook	1994
Chair, Division of Nursing, Math & Sciences Work Load Task Force	1993-1994
Chair, Division of Nursing, Math & Sciences Divisional Meetings	1993-1994
Elected Member, Faculty Affairs Committee	1993
Chair, SACS sub-committee on Undergraduate Admissions	1993
Appointed Member, Brainpower Connection Advisory Committee	1993
 <u>Fellowships, Honors, Awards:</u>	
Appointed Sr. Joseph Marie Armer Chair	2009-12
Recipient UIW Mission Award for "Truth"	2009
MS&E Nominee for Piper Award	2006
NASA Project NOVA Research Fellow. Selected by University of Alabama to conduct site evaluations, research studies, and prepare research reports for Project NOVA.	2001-2006
Nominee, UIW Presidential Teaching Award	2005

National Center for Online Learning Research (NCOLR) Research Fellow, selected by University of Alabama to conduct research into best practices for online learning/teaching.	2002-2003
UIW Title V Scholar-Teacher, Nominated by UIW faculty peers.	2001, 2002 2004
Who's Who Among America's Teachers. Nominated by UIW graduates.	1996