

James Harber  
Application for Sabbatical 2012~~2014~~  
Spring Semester 2014 requested for Sabbatical at 100%  
October 22, 2012 Draft

1. Statement of Purpose

The purpose of this one semester sabbatical is to pursue two goals:

(1) Participate in an unpaid research fellowship/internship in the iPS and Stem Cell sciences. This internship would involve acquisition of knowledge to support the cultivation of cell lines to support research and/or human clinical trials for eye diseases or alternatively another di

years. Second, the Community College mission for improving the educational partnerships for economic development and the pursuit of opportunities for lifelong learning are supported by the research internship I intend to pursue. Furthermore, both of my project goals are aligned with the state level mission of the California Community Colleges for supporting transfer education, career and technical education and community education and economic development. The advancement of a highly technical workforce requires well-trained faculty and support for a career pathway for student which are both goals of this sabbatical.

biotechnology field where methods and ideas change yearly, the stem cell sciences have emerged as a field that includes human therapeutics since I began teaching at Oxnard College. At Oxnard College as faculty, I have aligned myself with the organization Bio-Link.org that holds a yearly conference at U.C. Berkeley, which I attend in June that satisfies some aspects of professional development through participating exercises with companies and university collaborators. In the past several years, I have become aware that the stem cell sciences are a scientifically strategic area where each institution needs to have faculty with literacy. This is evidenced by the discovery in 2006 of the induced

College of San Francisco released curriculum related to this area for heart therapy in 2011 but without further formal training, none of the participants nationally including myself were able to achieve the endpoint of the model curriculum. I work exclusively in non-human cells for the work I perform in the lab and follow the guidelines of the NSF, CDC and Bio.org industry organization. However, in the new technologies it is best to observe how a major university is adapting itself to teach these iPS technologies to undergraduates and follow suite here at OC.

I am also aware of the need to balance new curriculum with the existing set of



immediately eligible for from the NSF. The SCCUR organization sponsors regular workshops to support grant applications to NSF.

Additionally, each year since 2009, I attended the weeklong Biobink conference at UC Berkeley in June that supports professional development for biotechnology faculty. Several NSF program officers that are in charge of advising, coordinating and reviewing the SSTEM grant applications to NSF attend this conference. In 2010 I was invited to participate with NSF as a program officer, but I was still in the tenure process and unable to make this commitment. The Biobink organization provides direct access to NSF and I have taken advantage of the opportunity to travel to Washington D.C. to participate in the review of grants from other institutions.

Following the careful advice from SCCURS and Biobink in conjunction with NSF will be an important component of success in achieving a STEM grant. The grant writing process is often tedious and so the opportunity to devote time to this project during the sabbatical is desirable. Already I have been encouraged to write this grant by members of my department and Oxnard College. My experience in writing is based on my obtaining approximately 2 million dollars for the Central Coast Biotechnology Center at Ventura College from this type of funding. The unique Hispanic Serving Institution character of Oxnard Community College will be highlighted in this grant application, though the overall intent of the grant is to address economic need.

#### a. Projected Results

There are two main deliverables from the proposed sabbatical project. One is the acquisition of skills and technology sufficient to create a new laboratory curriculum in iPS stem cell biology for the undergraduates here at Oxnard College. The second is the production of a grant application that would be submitted to the



a. Spring 2014 Sabbatical Timeline

Semester:	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014
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Training Manual Harrigan/dp/0759305145 and publishing details of the Community College Biotechnology Programs in a book while at Oxnard College  
<http://www.amazon.com/BestPracticesBiotechnologyEducationFriedman/dp/0973467673>

4b. Service

1. Department/Discipline

I have donated my time to run the Directed Studies (DLR) 199 program for student research at Oxnard College. Additionally I have supported maintenance of microbial stocks and laboratory curriculum for both the Microbiology and Biology Majors courses. As of Fall 2012, I have trained six newly hired part-time faculty on their laboratory responsibilities in Microbiology (MICR R100L) and/or Majors Biology (BIOL R100L). The outcomes of these were that we retained one person part time at OC (Graham). The economic profile of the cohort are that currently two are employed full time in biotech companies (Martinez, Graham), two are in medical school (Wilson, Gaff), one is now full time with the California Community Colleges (Hulbert) and one is employed at the State University (Majda). Three of these persons (Majda, Hulbert, Gaff) are currently employed at the State University (Majda). Three of these persons (Majda, Hulbert, Gaff) are currently employed at the State University (Majda).

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## Curriculum Vitae

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### Faculty

- 2007-2012: Oxnard College, Associate Professor, Tenured for Microbiology, Cell/Molecular Biology and Biotechnology
- 2005-2009: California State University, Adjunct Faculty and Advisory Board, Channel Islands Masters Program in Biotechnology/Bioinformatics and Adjunct for the Undergraduate Biology Program
- 2001-2007: Ventura College, Central Coast Biotechnology Center Director  
[www.ccbcwebnet](http://www.ccbcwebnet)

## Special Projects

- 2009-2012 HSISTEM Grant participant for Biotechnology at Oxnard College (total institutional award \$5 Million). New award (\$6 Million) begins Fall 2011.
- 2008-2012 June. BidLink Summer Fellow. Week long workshop for Community College biotechnology faculty and NSF participants at the U.C. Berkeley Campus ([www.bio-link.org](http://www.bio-link.org)) Sample: [bidink.org/home/sites/files/102009\\_Newsletter.pdf](http://bidink.org/home/sites/files/102009_Newsletter.pdf)
- 2010 November. Reviewer for the article "Academic Entrepreneurship and Entrepreneurial Universities" for the Journal of Commercial Biotechnology.
- 2010 August. National Science Foundation Participant; Washington DC.
- 2010 July. Author of a review for the Journal of Commercial Biotechnology of: Biotechnology: A Comprehensive Training Guide for the Biotechnology Industry (by Syed Imtiaz Haider and Anika Ashtok CRC Press 2009) <http://www.palgravejournals.com/jcb/journal/>

- 2008 October. Participant of Bio Advances in Stem Cell Discoveries Conference, S.F., CA <http://www.gtcbio.com/userAgenda.asp?id=135>
- 2008 September. Presenter, California Institute for Nanotechnology at San Bernadino Community College (<http://www.cinan.com>)
- 2008 June/July (8 weeks). Laboratory curriculum development projects for Microbiology and Biotechnology with STEM and MESA students at Oxnard College.
- 2003-2009: Advisor to "The New Genetics", a Stanford University Center for Biomedical Ethics and National Science Foundation project. <http://bioethicsstanford.edu/> (<http://www.thenewgenetics.net/participantlist.html>). This project is designed to create a modular curriculum for undergraduates that broaden the original "new genetics" curriculum for medically oriented students and provided ongoing education credit for medical professionals. Also: [http://www.ccewd.net/industry\\_publications.cfm](http://www.ccewd.net/industry_publications.cfm)
- 2004-2009: Member and Chair (2008-2009), Advisory Board of the California State University at Channel Islands Master's Degree in Biotechnology. Provided consulting related to initial program start-up, recruitment and organization related to the capstone team project course and for the speaker's symposium. The symposium includes leadership speakers from local technology companies that mentor students towards the development of their second year team projects. See also the section on teaching repertoire herein. See <http://www.csuciedu/exed/msbiotech.htm>
- 2007 August: Workforce Needs Assessment in Biotechnology for the Central Coast. Produced by the Resource Group in Conjunction with Moorpark and Ventura Colleges with an introduction by Dr. Harber (Central Coast Biotechnology Center) [www.ccbcweb.net/pdf/Biotech\\_Final\\_Report\\_2007.pdf](http://www.ccbcweb.net/pdf/Biotech_Final_Report_2007.pdf)
- 2007 March: Presentation to the Tech-nov technologies conference in Ontario, CA



<http://web.archive.org/web/20040729034000/http://www.gcic.org>

- 2004, 2005, 2006: Grant Reviewer California Polytechnic University, San Luis Obispo C3RP. <http://www.c3rp.org> Participant with all science deans in the prioritization of research grant awards to C.S.U. faculty. Approximately one million dollars of Office of Naval Research funding was awarded to thirty faculty teams.
- 2004: Judge for the California State University Graduate Student Research Competition (held at CSU Northridge).
- 2003: Biodiesel Refinery Groundbreaking Participant. Original member of the Ventura County Memorandum of Understanding between the National Park Service, U.S. Navy, County of Ventura, Central Coast Biotechnology Center (Harber, Director) and Biodiesel Industries (Santa Barbara).  
<http://www.zyn.com/flcfw/fwnews/fwarch/fw032a.htm>
2003. Contributor to the document The History, Current Status and Future History of the California Community Colleges Biotechnology Initiative. Helping Meet the California Biotech Industry Need for an Operational Workforce[http://www.cccbitech.org/images/white\\_paper.pdf](http://www.cccbitech.org/images/white_paper.pdf)
2002. Contributor to the document California Careers in Biotechnology, A Counselor's Guide to the Best Jobs, 2nd Edition by Gina Frierman-Hunt and Julie Solberg (published by the California Community Colleges Economic Development Network Statewide Initiative in Biotechnology and Women at Work.  
<http://www.cccbitech.org/cacareers.html>)
2001. Presenter A two-hour computer laboratory presentation on Proteomics and three-dimensional molecular structure strand was delivered at the National Science Foundation Summer Institute in Bioinformatics (University of California at Davis).
- 1999-2006: Advisory Board Member for Moorpark College's Industrial Biotechnology technical training program. In conjunction with employment at Moorpark College, Dr. Harber developed curriculum for teaching at the laboratory located at the California State University Channel Islands Campus.
- 2000: Author of the PCR Mycoplasma Detection and ~~SAS~~ chapters in the text developed by Moorpark College instructors titled: Industrial Biotechnology, A Training Manual. Thompson Publishing, 2001, ISBN 0-7593-0514-5
- 1998: Consultant to Norse Associates (Thousand Oaks). Preparation of research reports for the purpose of pursuing acquisitions and mergers. Reports were prepared summarizing the development of pharmaceutical products by emerging companies in development. This included information on clinical trial stage, aspects of the scientific strategy, intellectual property, chemical syntheses and genetic origin (see research publications below).
- 1996-2007: James Harber Consulting, Thousand Oaks. Technology analysis and research support for wireless internet and biotechnology start-up companies.
- 1996: Biological Sciences Judge at the Statewide Science Fair in Los Angeles
- 1988-1994: Co-established and staffed a bioinformatics and three dimensional molecular graphics and World Wide Web (internet) facility (Microbiology and Genetics Department at the State University of New York at Stony Brook). This resource was based around a Silicon Graphics workstation that bridged a T1 (megabit) World Wide Web connection to a local network of personal computers. Research Faculty, Staff

and graduate students were advised in the use of resources such as Genbank, The Wisconsin Genetics Group GCG suite of molecular analysis programs, National Center for Biotechnology Information (NCBI), European Molecular Biology



are provided resources to find employment directly at local companies or in

well as trends in business, finance and regulation. Students are encouraged to develop semester projects which emphasize emerging technology applications.

Team Project (3 units Master's Program for Biotechnology and Bioinformatics, CSUCI).

Local industry scientist team leaders have been paired with four students in each of six teams. The teams are performing research investigations into bioenergy, structural biology, vaccine formulations, stem cells for heart therapy, nanobiotech microfluidics, and the neurobiology of Alzheimers disease. The Team Projects Produced by Dr. Harber in a team taught course with Dr. ~~Ching~~ Wang (2007) and Karol Pessin, J.D. (2008-2009) include the first 19 projects listed on the following site (Industry Advisor Mentors, Project Names, and Student Numbers

mitochondrial mutation and disruptions of the cell cycle. Aging avoidance strategies were discussed in detail.

*Caltech (1995-1996):*

Semester Seminar (45 hours/semester). Caltech. A weekly seminar course organized by Dr. Harber that emphasized molecular biology, virology, immunology and internet methods for undergraduates. The discussion topics included emerging diseases, contemporary molecular medicine, laboratory research of human pathogens and genome sequencing projects. The course was taught in the internet-enabled classroom on the campus at the time.

Research Publications

- Emerging Pharmaceutical and Biotechnology Companies of the Western United States. A Summary of Products in Clinical Trials and their Chemical Syntheses. Part I: Southern California Area and Part II: Northern California Area. Norse Associates Consulting, Thousand Oaks, CA. (1999)
- James Harber, Gunter Bernhardt, Hui-Hua Lu and Eckard Wimmer. Canyon Rim Residues, Including Antigenic Determinants Modulate the Serotype Specific Binding of Poliovirus to Mutants of the Receptor. *Virology*; volume 214: p. 570 (1995).
- Hui-Hua Lu, C.F. Yang, Andrew Murdin, Michael H. Klein, James J. Harber, Olin M. Kew and Eckard Wimmer. Mouse Neurovirulence Determinants of Poliovirus-Ty strain Ls-A Map to the Coding Regions of Capsid Protein VP1 and Proteinase 2a(pro). *Journal of Virology*; volume 68 (11): p. 7507515 (1994).
- Gunter Bernhardt, James Harber, Andree Zibert, Marie de Crombrughe and Eckard Wimmer. The Poliovirus Receptor: Identification of Domains and Amino Acid Residues Critical for Virus Binding. *Virology*; volume 203, p. 34356, (1994).
- Peter Mason, Barry Baxt, Fred Brown, James Harber, Andrew Murdin and Eckard Wimmer. Antibody Complexed Foot and Mouth Disease Virus, but not Polio

