# PROGRAM REVIEW MATHEMATICS

M.S. in Mathematics Program
2016
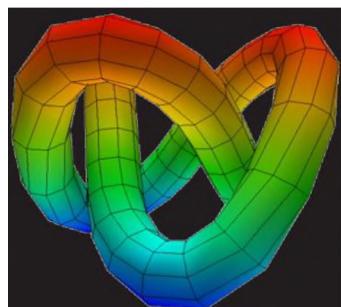
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Note the following document organization for CSUCI program review elements:

Chapter II -Element One - Defining Program Purposes and Ensuring Educational Outcomes
Chapter IV - Element Two - Achieving Educational Outcomes

Chapter III - Element Three - Developing and Applying Resources to Ensure Sustainability

Chapter V - Element Four - Creating an Organization Committed to Learning and Improvement

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I. Executive Summary

The Mathematics department at CSUCI and its curriculum provide a strong and flexible graduate program in mathematics. Thesis units (6) and research projects included in the program provide an opportunity for more focused and/or interdisciplinary training in pure, applied or industrial mathematics as well as mathematics education. Our Master's degree program has are well prepared to enter the workforce in technical or interdisciplinary fields or as collage level mathematics educators, and are also ready to pursue more advanced studies in mathematics. The program produced graduates who have done well in getting employment after graduation in industry, banking or research and development units. The mathematics department's faculty are talented teachers and successful researchers and professionals. All of our hires have attained tenure and promotion when eligible. With the growth of the Mathematics Program has come an increased opportunity for students to be engaged with faculty on research projects or internships in the community. Additionally, critical to the functioning of our large department, is a competent staff that is able to handle the challenges associated to running this complex operation.

A.   PREVIOUS REVIEWS

MS program at CI started in 2005 as a pilot program on self-support status through CI Extended Education. It was reviewed and approved by the Chancellors Office for permanent status in 2010. Department received commendations for its curriculum, attracting around 40 students and graduating 10-15 of them per year.

. The department also received commendations for the:

Quality the curriculum and the program faculty

Professional and scholarly productivity of the faculty

Student involvement in research/problem solving with faculty

Informative web page

II. Program Purposes and Ensuring Educational Outcomes

A.   HISTORY AND CONTEXT

The Mathematics Department at CSUCI is 15 years old as it started when the university opened in 2001. The program offers a complete set undergraduate courses leading to a Bachelor of Science degree in mathematics. The department also offers minors in mathematics, statistics and foundational mathematics. Master of Science in Mathematics degree started in 2005 as a pilot program, and became permanent program in 2010. The strength of our undergraduate program gives a chance to conditionally admitted students to quickly supplement their background. The mix of pure and applied mathematics in our programs increases both the usefulness of and the

demand for graduates with a degree in mathematics, as for several decades there is a significant national shortage of professionals with advanced mathematics skills. Note that our permanent faculty as well as our qualified lectures teach graduate level courses depending on their specializations and demand. Many of our MS students choose to continue to graduate school. Almost all of them find mathematics degree related employment within two months after finishing their graduate degree.

To facilitate our graduate students' schedule, we offer most of the courses after 5pm. After mastering three core courses, students have choice of electives and they select thesis topic following their interests either in pure, applied areas or mathematics educations. Most of them work as Graduate Teaching Assistants at CI gaining valuable experience for their future careers. In their second year, most of them work in local colleges as independent instructors. About 30% of math graduate students work for local industry. Every year, several MS graduates continue to Ph.D. programs.

The rich variety of courses offered by the department permits the students not only to obtain a broad exposure to those areas of mathematics which are fundamental to advanced mathematical study or secondary school teaching, but also in interdisciplinary areas of mathematics such as physical sciences, engineering, art, data analytics, business, management sciences, computer science, and operations research.

B.   PROGRAM MISSION AND GOALS

The University's Mission statement is:

Placing students at the center of the educational experience, California State University Channel Islands provides undergraduate and graduate education that facilitates learning within and across disciplines through integrative approaches, emphasizes experiential and service learning, and graduate students with multicultural and international perspectives.

Following the above our program's mission is the following:

Mathematics can be pursued as a scholarly discipline of an especially elegant and creative art form or it can be treated as a valuable tool in an applied discipline. Our program addresses both needs. Students are given a strong background in mathematics and statistics as well as a substantial amount of interdisciplinary applications in physics, computer and information sciences, computer imaging, biostatistics, artificial intelligence, and/or business.

Careers

The mathematics major will prepare students for teaching careers, studies in graduate programs (in pure mathematics, applied mathematics, mathematics education, or the mathematical sciences) or for employment in high-tech and bio-tech industries, where mathematics-trained professionals with interdisciplinary expertise (science and business) are increasingly sought after.

CI Mission-Based Student Learning Outcomes:

CSU Channel Islands' graduates will possess an education of sufficient breadth and depth to appreciate and interpret the natural, social and aesthetic worlds and to address the highly complex issues facing societies.

Graduates will be able to:
Identify and describe the modern world and issues facing societies from multiple perspectives including those within and across, cultures and nations (when appropriate); and analyze issues, and develop and convey to others solutions to problems using the methodologies, tools and techniques of an academic discipline.

Following the above mission statement, we have developed program specific **MS in Mathematics Program Learning Outcomes:**

1. Provide students with the opportunity to earn a Master degree in Mathematics from the California State University.
2. Prepare students for employment in a variety of highly sophisticated and complex high-tech and bio-tech industries, businesses, education systems, military and local and federal government
3. Prepare students for further study in graduate or professional schools.
4. Equip students with the depth, flexibility and mathematical skills that apply to variety of fields and offer various career opportunities, including consulting, scientific and technical positions in business and industry, research and development, national and industrial security or teaching positions.
5. Offer all CSUCI students the opportunity to broaden their knowledge and learn mathematical skills and computer technology that can be applied to various professional and personal situations.

Student Learning Outcomes:

Students will:

1. Demonstrate critical thinking, problem solving, and advanced mathematical skills by identifying, evaluating, analyzing, synthesizing and presenting fundamental and advanced mathematical and computer science issues and their applications.

2. Demonstrate the knowledge of current mathematical theories and broad technology use in industry, including a working knowledge of software development techniques in an industrial setting.

3. Be knowledgeable of emerging new technologies and industrial practices connected to the computer industry and demonstrate understanding of computing technologies in society.

4. Demonstrate cooperation skills by working effectively with others in interdisciplinary group settings – both inside and outside the classroom.

5. Demonstrate independent working and thinking skills by completing a graduate project and/or master thesis.

6. Demonstrate a sense of exploration that enables them to pursue rewarding   careers in high-tech industries, bio-tech industries, businesses, education systems, military and local and federal government

7. Demonstrate flexibility, transferability and adaptability of their life-learning skills that are so important n fast changing national and international economy.

III. Developing and Applying Resources to Ensure Sustainability

A. ACADEMIC PROGRAM

Summary of the program degree requirements for **Master of Science Program in Mathematics**

Our Master of Science program is designed to prepare students for careers in the mathematical sciences. Our program is designed to accommodate various student schedule and most courses start after 5pm. About 50% of our graduate students are working professionals looking to augment their education and 50% are full-time students committed to finishing the program in two full years. Accordingly, we have designed our curriculum and teaching program to serve three principle career paths. First, we train future California community college teachers. Second, we prepare our graduates to enter Ph.D. programs in Mathematics. Third, we train students in applied areas (including statistics and engineering) as some of our students do enter industry directly upon graduation, often accepting employment at technology or finance companies. Recent data from AY 14-15 show that 30% of our graduates get positions at Community Colleges, 20% go on to Ph.D. programs, and 50% find industrial employment.

MS in Mathematics Program Description from the CI catalog: Our MS in Mathematics program is interdisciplinary and innovative in nature and offers a flexible schedule with highly qualified faculty. The program is a result of cooperation between mathematics, computer science, and physics faculty and is designed to address the global need for people with advanced mathematical, analytical, and computational skills. Students are provided with a strong background in mathematics and its applications as well as skills necessary to conduct independent research. The program incorporates interdisciplinary applications such as bioinformatics, actuarial sciences, cryptography, security, image recognition, artificial intelligence, mathematics education, and the philosophy of mathematics. Students' specializations depend on the electives chosen and on the final thesis/project conducted under the

supervision of an advisor/mentor. An individual study plan can be designed to meet entry requirements for Ph.D. programs in mathematics or the mathematical sciences.

Graduate Curriculum: Our course work is designed to cover and enhance the material outlined in our program student learning outcomes.

Prerequisites for the program: The majority of the students admitted into the MS program have a bachelor's degree in mathematics or a closely related discipline. It is recommended that you have completed at least one semester in each of the following topics: real analysis, probability and statistics, and abstract algebra. Students lacking recommended prerequisites may be admitted conditionally and advised to take undergraduate courses necessary to prepare fully for the program.

Requirements for the Master of Science in Mathematics: - 32 units

Core Courses - *11 units of*

MATH 511 Functional Analysis (3)
      MATH 512 Probabilistic Methods and Measure Theory (3)
      MATH 513 Advanced Algebra (3)

And required two units of: MATH 599 Graduate Seminar (1)

Electives - *15 units**, Choose *at least two electives from the following list:*

MATH 570 Combinatorics (3)
MATH 582 Number Theory and Cryptography (3)
MATH 584 Algebraic Geometry and Coding Theory (3)
MATH 587 Markov Chains and Markov Processes (3)
MATH 588 Stochastic Analysis (3)
MATH 590 Graduate Topics in Mathematics

Choose at most three electives from the following list:

MATH 555 Actuarial Sciences (3)
MATH 565 Research in Mathematics Education (3)
PHYS 510 Advanced Image Analysis Techniques (3)
PHYS 546 Pattern Recognition (3)
COMP 554 Algorithms (3)
COMP 569 Artificial Intelligence (3)
COMP 571 Biologically Inspired Computing (3)
COMP 572 Neural Networks (3)
COMP 575 Multi-Agent Systems (3)
COMP 578 Data Mining (3)

MATH 594 (Independent Study) and other graduate courses from mathematics or the mathematical sciences may be included with the graduate advisor's approval.

Master's Thesis Concentration: 6 units

MATH 597 Master Thesis (1-6)   *or*   MATH 598 Master Project (1-6)

*Math 597/598 may be taken for a maximum of 9 units.

Before registering for the first unit of thesis (or project), full admission to the program must be obtained, at least one core course must be completed with a B- or better, a faculty thesis advisor arranged, and a thesis topic chosen for which the student is prepared to do research. Students are strongly advised to obtain the proper background in a relevant area of graduate-level mathematics before registering for any thesis units. A thesis committee of 2 to 3 faculty members must be formed before registering for the final unit of thesis. A non-faculty scientist or professional with relevant expertise may serve in place of a faculty member on a thesis committee (but not as a thesis advisor), subject to both the Director's and thesis advisor's approvals. A signed Thesis Units Request Form is required for registering for thesis units and is available on the Program webpage. Successful completion of the thesis requirement also requires (1) an oral thesis defense to the thesis committee, (2) a presentation of the thesis results to the campus community, (3) a signature page with signatures of acceptance from all thesis committee members, and (4) electronic submission of the thesis to the University Library for archiving.

Graduate Writing Assessment Requirement: Writing proficiency prior to the awarding of the degree is demonstrated by successful completion of at least **two** credits of MATH 597 (Master's Thesis) or MATH 598 (Master's Project) with a grade of B or higher.

Note that three core 500 level courses are required as they cover much of the classical advanced material in mathematics: analysis, algebra, and probability. These core courses are offered every third semester (hence the shortest possible time to graduate is three semesters). The seminars Math 599 are offered every semester and serve as project and presentation venues, with many outside speakers invited. All graduating students present their thesis at the end of the semester during the seminar.

MS Thesis Projects or Master's Thesis Emphasis - 6 units: All graduate students have to write thesis by taking Math 597 or 598. These courses may be taken for a maximum of 9 units. Before registering for the first unit of thesis or project, full admission to the program must be obtained, at least one core course must be completed with a B- or better, a faculty thesis advisor arranged, and a thesis topic chosen for which the student is prepared to do research. Students are strongly advised to obtain the proper background in a relevant area of graduate-level mathematics before registering for any thesis units. A thesis committee of 2 to 3 faculty members must be formed before registering for the final unit of thesis. A non-faculty scientist or professional with relevant expertise may serve in place of a faculty member on a thesis committee (but not as a thesis advisor), subject to both the Director's and thesis advisor's approvals. A signed Thesis Units Request Form is required for registering for thesis units and is available on the Program

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Teaching Associate Program: Most of our students are offered positions as Teaching Associates (Graduate Student Instructors). Our ability to offer these is dependent on the number of basic and intermediate algebra courses we offer. The TA program is the major source of financial support for mathematics graduate students. We normally assign one course per semester to per students. Second year students offer teach additional Math 399 labs. The fact that we hire our graduate students as Teaching Associates where they are responsible for every aspect of their assigned course is a distinct advantage for them during their later job searches as the experience they gain from running entire courses on their own is a powerful resume enhancement. We have no doubt that our teaching program significantly impacts our job placement record. Comments from alumni regarding our TA program are very positive. There are one-day long training meetings during the week prior to the beginning of every semester run by the course coordinators and the department chair. The tutoring center (LRC) provides additional training on first Friday of classes. The program has plans to improve the TAs training in the future. More information about the MS in Mathematics degree can be found at this link http://ext.csuci.edu/ms-mathematics/thesis.htm

Course Learning Outcomes

All of our courses have learning outcomes that are available on the detailed course outlines under Mathematics: http://facultydevelopment.csuci.edu/assessment.htm

They are shared with faculty teaching courses and are placed on every syllabus. These outcomes are communicated to students either directly or on Blackboard or as hyperlink in syllabi.

Process used to revise and update curricular content

Major changes to core curricula always go through our program review and discussion. Recommendations are made and voted on. Detailed course outlines for lower-division service courses that are mostly taught by lecturers are very prescriptive on content, textbook, follow the CSU system and various accreditation requirements.

Co-Curricular Activities

Student Research Projects: Since majority of our faculty curry grants mathematics students have numerous opportunities to participate in research projects. Resent projects include imaging, sleep modeling, voting modeling, study and visualization of algebraic surfaces, and mathematics education projects. Every second year CSUCI Mathematics offers an 8-week summer research program (NSF REU) recruits students from our campus, nationally and internationally. Many of these projects lead to research projects, poster presentations at regional meetings of the MAA, and occasionally, published articles. Math faculty also leads projects for

ACCESO, and other campus wide grants. Graduate students all spend at least one year working on research or projects with faculty advisor before writing their thesis. Over all in the last six years we have between around 50 undergraduate and 35 graduate students working on research projects with mathematics faculty members.

Mathematical Competitions: CSUCI graduate students have two opportunities to participate in mathematical competitions. We had students competing in IEEE, MAA. AMS research project competitions.
Almost all graduate students compete at least once in MAA Student Research Poster Competition and typically win awards for their research projects (last year 2 graduate prizes won). The following graph summarizes student award recognitions in the field of mathematics over the five years (graduate and undergraduate combined). These include prizes at student competitions, best research poster awards and distinguished student paper recognitions. For example last year students won 4 prizes at received

Student Awards and Recognitions

# of awards vs Academic Year (2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016)

Legend: ■ Student Awards and Recognitions
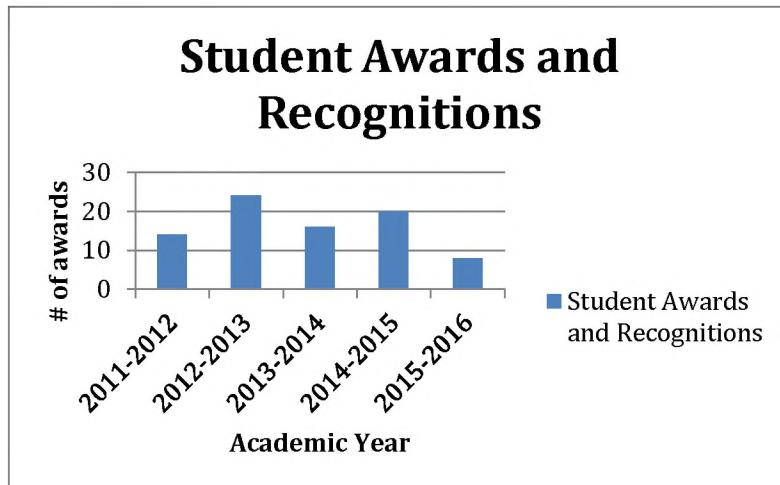
Math Club: At CSUCI, we have an officially recognized Math Club that has been active in organizing social events for our math students and friends. Several times each year they arrange picnics, hikes, movie nights, game nights, soccer and Frisbee annual student/faculty games. They have run many different types of fundraisers including quarterly book and T-shirt sales. Many of the Math Club officers help out for math department events such as Open Houses, Career Days and local schools: Our Math Club collaborates with other Clubs on campus organizing events (especially with CS Girls Club, Physics Club, and CS Club).

Employment Opportunities during Studies: The department hires graduate students as teaching assistants (GSIs), as graders, tutors, lab assistant, research assistants and workshop facilitators. Local industry, government and education systems employ some of our students as well.

Summary and Reflection

In summary, offering a program with small core and interdisciplinary choices has been successful and students get involved in research projects of their interests. We revised schedule for the MS program, added stability to our course offerings and only small curricular changes to

help improve the scope of our graduate offerings are considered. Additionally, we have the capacity to grow our graduate program, but we need to plan carefully to make sure that we continue to recruit highly qualified applicants. Our survey data show that our BS and MS students easily find mathematics related position shortly after graduation.

B. FACULTY

We have 9 permanent mathematics faculty and 24 lecturers (majority of them with Ph.D. degrees) and we offer about 20 TA- teaching assistant positions (GSIs) per semester (based on 4-5 WTUs). All permanent faculty teach selected courses in the graduate program depending on the course offerings. Lecturers with Ph.D. degrees also teach some courses in their fields of specializations. TAships usually are based on teaching developmental or introductory courses, or supplementary labs. Here is the list of the mathematics Faculty with degrees, research areas and contact information:

Tenure line faculty

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Full-time lecturers

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There are broadly four distinguished areas of specialization within our department. They are pure mathematics (comprising several sub-disciplines), probability/statistics, applied mathematics and mathematics education. The current composition is 7 permanent faculty in pure mathematics (14 including all lecturers), 2 (5 including lecturers) in probability/statistics, 5 in applied mathematics (7 including lecturers) and one (4 including lecturers) interested in Mathematics Education. The program has no permanent faculty in mathematics education with 6 lecturers working in this area. Lack of mathematics educators causes problems with student-teacher supervision, grant applications, communications with the Commission on Teacher Credentialing and our School of Education.

Our faculty is also quite diverse: we have 60% females (60% including all lecturers), which is much above the national average in mathematics or sciences, 30% Hispanic tenure-track faculty (over 20% including all lecturers, which is much above the national average and reflects well our campus location. We have an international representation having faculty with roots in Poland, Ireland, Czech Republic, Spain, Lithuania, Russia, Korea, Iran, Philippines, Mexico and Guatemala. Additionally, some of our TAs come from China, Japan, Chile, Hungary, India, Kazakhstan. We also have various religions and orientations represented in the program. This diversity serves well our collaborations and our students.

Need for future faculty hires

The Mathematics Program has acute needs in the advanced areas of probability, statistics, analysis, applied mathematics, and mathematics education: qualified lecturers in these areas are very hard to find. Our 8 tenure track (TT) faculty are very active, generating grants and working on various university projects (that includes for example Early Start Math Program, EOP Math, CCTC Teacher Preparation and internships, MS in Mathematics, STEM Center and Center for Interdisciplinary Studies). However, this further constrains the undergraduate and graduate programs in terms of TT faculty availability for program needs. Note that our graduate courses have typically 10-20 students in them, hence program is able to support itself.

A four-year plan for hiring in our department was requested by the provost in 2014 to improve the overall faculty to student ratio across the campus (that is currently the highest in the CSU system). The following table shows the projections for the mathematics department based on the program FTES (which are close to 10% of the campus FTES). The plan predicted that in years 2014-2017 campus will hire 9 mathematicians. However, the expectations were not met and we hired two faculty in 2014 and one in 2016. Therefore, with the campus growth the faculty indicators for the mathematics program are among the worst on the campus. The 'Needed Hires' column shows what is the numerical shortage of positions in the Mathematics program, 'Requested New Faculty" shows the actual number of positions requested for specific years. Last

column shows the actual number of hires from two approved searches. The current difference between the plan and the hires is 6 positions (taking into the account the fact that no new position was assigned to the mathematics program for 2017).

Hiring Plan Mathematics 2014-2018												
MATH	0.09	Fraction of Total CI FTES										
	FTES	FTES			TT		Number of					
	CI	A&S	MATH	WTUs	WTU	% TT	Hires					
AY2010				200	24	12	0					
AY2011				225	24	11	0					
AY2012	4500	3415	364	251	25	11	0					
AY2013	5000	3700	400	275	25	9	0		Requested		Program	
							Needed Hires	New TT WTU	New Faculty	Intergrated WTU	Intergrated Faculty	Actually hired
PLAN 2014-2018												
AY2014	5500	4125	444	305	45	25	7.8624	20.00	3	20.00	9	2
AY2015	6000	4500	490	337	60	30	7.1243	14.0	2	34.00	11	0
AY2016	6500	4875	548	377	132	35	6.3703	14.0	2	48.00	13	1
AY2017	7000	5250	600	413	165	40	5.8182	14.0	2	62.00	15	
										Difference		6

The table predicts that in years 2014-2017 campus will hire 9 mathematicians. However, the expectations were not met and we hired two faculties in 2014 and one in 2016. Therefore, with the campus growth the faculty indicators for the mathematics program are among the worst on the campus.

The majority of our lecturers hold Ph.D. degree and many of them teach graduate and upper division curriculum offerings and work on advanced student projects. However, Math Program employs 35-40 lecturers each semester (including about 20 TAs). Relative to our 9 TT faculty – several engaged in external-to-Mathematics responsibilities, this is arguably the most unbalanced situation among CI's Arts & Sciences programs.

 Graduate student advising is done by Program Director, Mathematics Chair as well as student thesis advisors (chosen in the second or third semester). MS Mathematics Program has typically around 40 students and graduates around 15 students per year.

We hired a statistician who will start in Fall 2016 and we hope she will take over coordination of statistics courses and supervision of thesis in this areas part of her duties. We are in an acute need for Mathematics Educators, as with the growth of CI campus the number of students interested in teaching collage level mathematic increased, hence demand for math education courses and thesis in math education is growing.

Faculty Workloads

All our faculty are very busy and they dedicate a lot of their time to scholarship and working with students. Each semester every faculty is accounted for 12 WTUs, where typically 6 WTUs come from teaching undergraduate or graduate courses, and the rest is associated with administrative functions, grants and buyouts. In the program base funding we have Developmental Mathematics Coordinator (3 WTUs per semester), Graduate Program Director (3 WTUs per semester), Lab and Lab assistants Supervisor (3 WTUs per semester), CCTC coordinator (1.5 WTU per semester), and Chair (6 WTUs per semester). These release time is not satisfactory and we fund form the program funds 94 and 95 course coordinators (2 WTUs per semester), statistics, pre-calculus and calculus coordinators (1-2 WTUs per semester depending on the faculty other duties).

Faculty Scholarship and Professional Engagement, Teacher-Scholar Model

Our department's definition involves accomplishments in scholarship (with and without student coauthors), successful grant applications, undergraduate research, professional development activities, student research projects, and presentations at professional conferences.

Faculty scholarship and professional development

See also Appendix A

Our faculty members are very active in various areas of research and majority of them can involve undergraduate and graduate students. The entire TT faculty hired came to us with a track record of successful professional scholarship. They regularly present their research at professional conferences nationally and internationally, conduct research and consulting activities, publish in mathematical journals. The program has several long-term grants, some of them interdisciplinary and/or collaborative. Majority of our lecturers hold Ph.D. degrees and we strongly support their scholastic activities, research projects (especially involving students) and publishing efforts. Many of them are involved in research, applies for grants, present their results at conferences and some of their student projects were awarded recognitions (including for achieving interesting results with lower division students). All eligible math faculty apply for campus mini-grants and UNIV 492 Student Research courses.

To meet demand for graduate research projects every semester we offer thesis or project units Math 597 and 59 supervised by various faculty.

Faculty can use grant funding for course buyouts as well. This way they can dedicate more of their time to their scholastic activities. For example, our faculty served as PIs or Co-PIs on the following grants: NSF Carrier, NSF Noyce, NSF REU, Keck grant, GATES, CURM, CI professional development Mini-grants, LSAMP, PUMP, HIS, ASSESSO and other campus-wide grants (such as HIS- STEM). Supported by the campus policy, we offer each faculty member $1,200 per year in professional travel support. This can be used for conferences or collaborations. Program supports additional faculty activities through CERF funding and grants' overhead.

The following represents overall faculty accomplishments in various categories over the last five academic years. Many of the research activities involve students.

Program Accomplishments
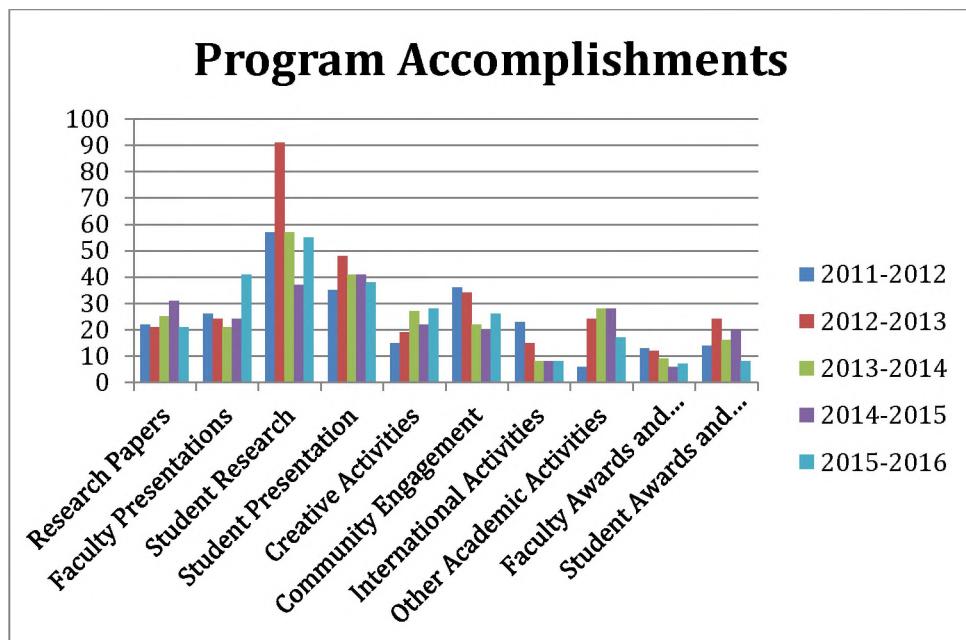
The next graph shows the number of research papers published by faculty in professional journals over the last five years. The areas of research include number theory, algebra, algebraic geometry, differential equations, mathematical modeling, and mathematics educations. Some of the publications involved student collaborations.

Research Papers
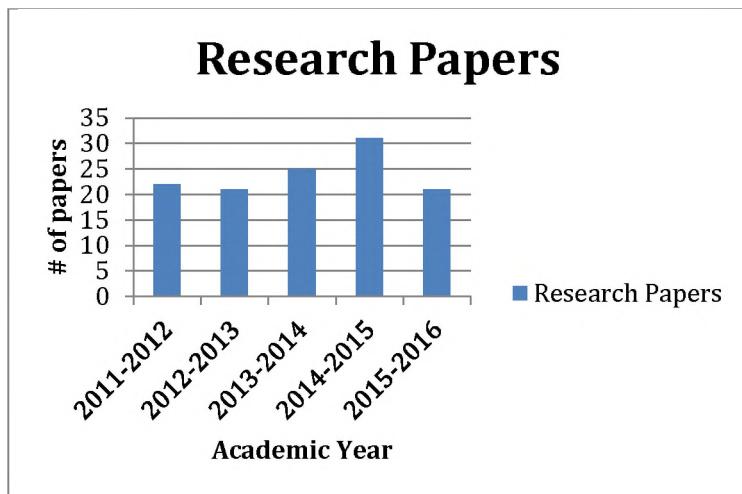
Additionally, our faculty actively disseminates their research results through seminar talks, presentations (national and international conferences) and other activities. The following graph presents number of professional presentations in the last five years.

Faculty Presentations
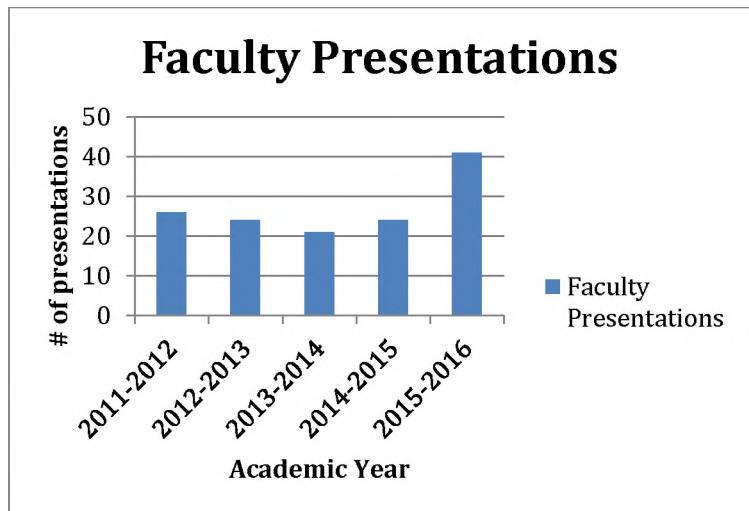
Following the CSUCI mission, the program is supporting hands-on experiential learning through various activities. The following chart presents numbers of faculty supervised undergraduate and graduate student research projects, many of which were accepted for presentation at various conferences (including SAGE Research Student Conference on CI campus, Mathematical Association of America Student Research Poster Competition, American Mathematical Society Student Research Competition at JMM, Posters at Capitol for young researchers, SACNAS for young Chicano/Hispanic and Native American scientists as well as other professional conferences (some of them at international venues, such as Italy, Mexico and Canada).

Student Research
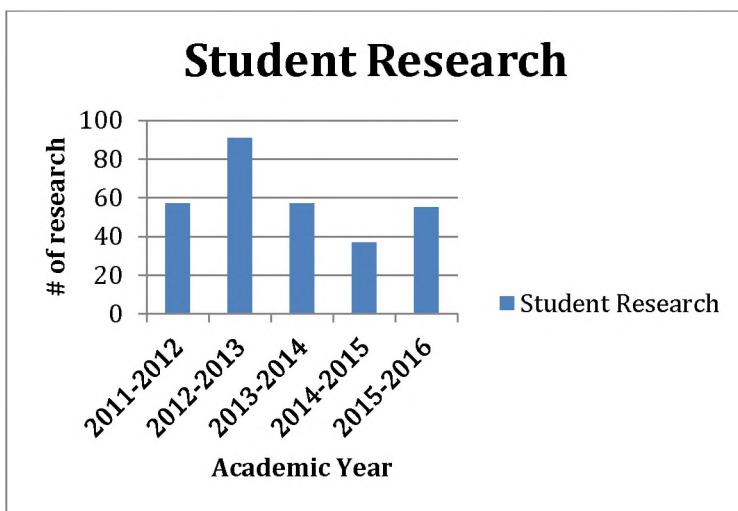
The following graph summarizes the number of total number of student presentations at local, national and international conferences. Typically, about 60% of them are given by our graduate students.

Student Presentations

# of presentations vs Academic Year (2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016)

■ Student Presentation
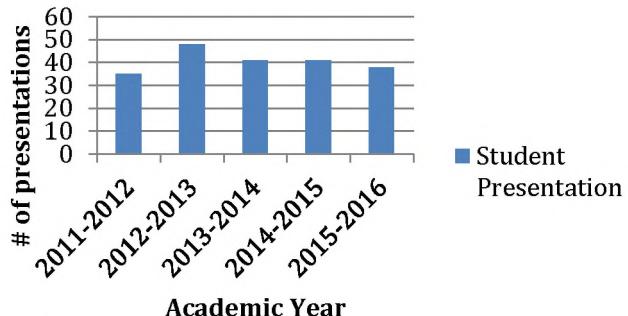
Every semester our faculty is involved in various other creative activities that include for example serving on professional boards, scholarship boards, on journal review boards, collaborations on industrial projects and leading math clubs or delivering workshops for teachers in local schools. For example, faculty collaborates with the University Preparatory School, Pleasant Valley and Thousand Oaks High Schools Districts and schools. One faculty worked with film studios on synchronous programing of 400 small drones for an artistic presentation. For example, three math faculty have participated in the university-wide Critical Friends Group since its inception in S'07, one participated in a university-wide Teaching Circle during S'07, majority regularly carry out Mini-Grant projects, and four are members of the regional NExT program. All attend workshops and sessions at conferences designed to further their teaching and/or their scholarship.

Creative Activities

# of activities vs Academic Year (2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016)

■ Creative Activities
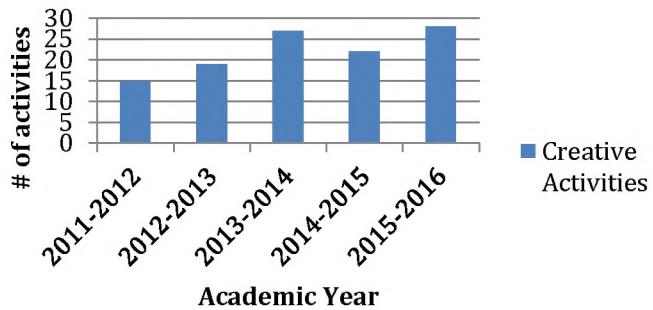
Our faculty is involved in local community Faculty community engagements (serving on academic panels, business boards, school boards, committees, giving popular lectures and concerts, collaborating with community colleges, publishers, government, etc.) For example our faculty served as reviewers for International Journal of Mathematics, Psychology of Mathematics Education, SIAM publications, and as the chief editor for Teaching Children Mathematics. They collaborated with Ventura, Oxnard, Moorpark, Santa Barbara and Pierce community colleges, with local navy, and Ventura County offices.

Community Engagement
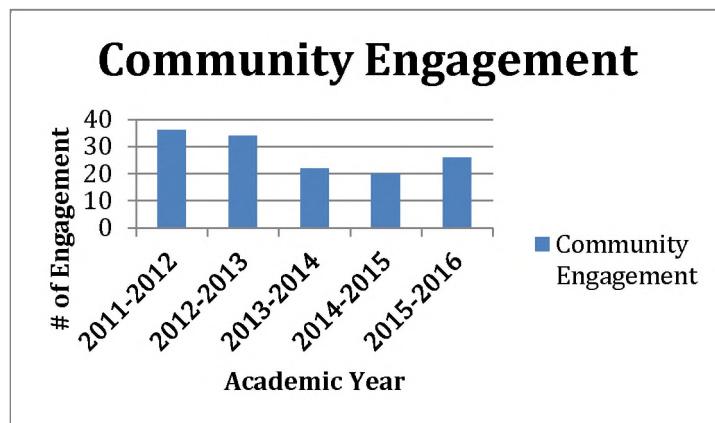
Several of our faculty has professional international ties that include collaborations, conference organizing, facilitating international student internships and conference participation, and similar international activities that are summarized below. For example, for the past four years 4 of our students visited and presented at the University Roma Tres in Italy, 3 math majors participated in a conference at University of Canberra, Australia. Note that number of student international activities has declined over the past several years due to the decreased connections with Mexico (travel there is restricted by the US State Department) as well as decline of the university funding for these activities. The chart below display reported faculty international activities.

International Activities
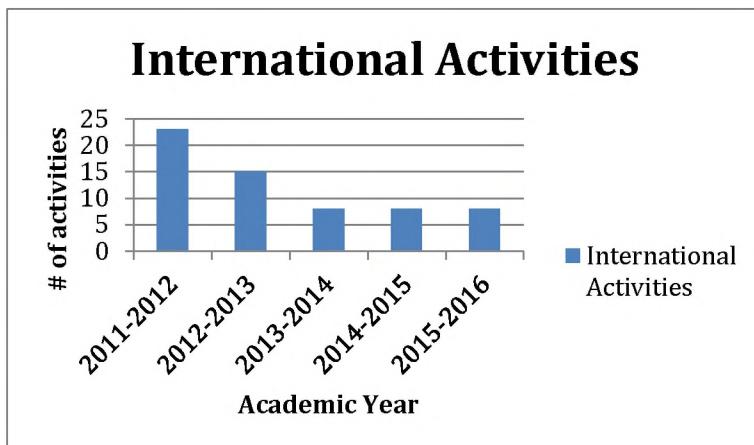
Other academic activities displayed below include organizing conferences, serving as reviewers for journals, judging competitions, collaborations with teachers, math clubs at local schools, mathematical game design, etc. Faculty served on various scientific boards and positions of responsibility including: the board of California Section of Mathematical Association of America (1 Chair, 1 Secretary), 1 is on board of local IEEE, 2 are on board of B&PT, 1 serves as Senate vice-Chair.

Other Academic Activities
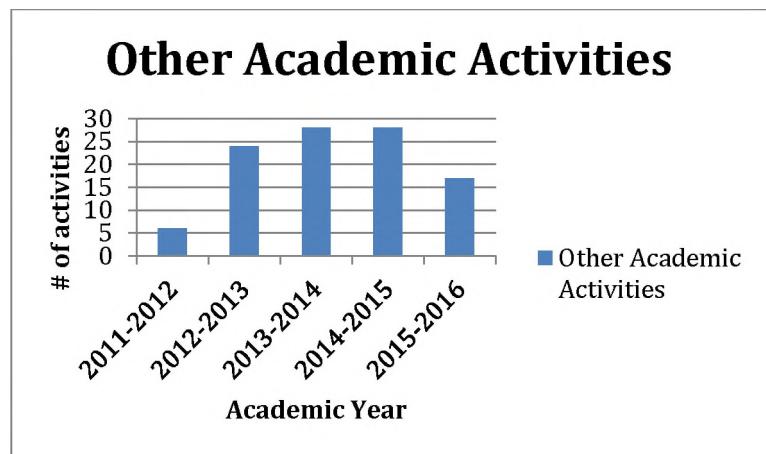
Research, mentoring and teaching activities of our mathematics faculty attract awards and recognitions locally, nationally and internationally. For example in the past six years, our faculty has won two national MAA teaching awards, several SAGE mentoring awards, two Business and Technology Leadership Award recognition of papers, mentions on grants awarded, etc. The graph shows the numbers for the past five years. For student awards see chapter IVB.

Faculty Awards and Recognitions
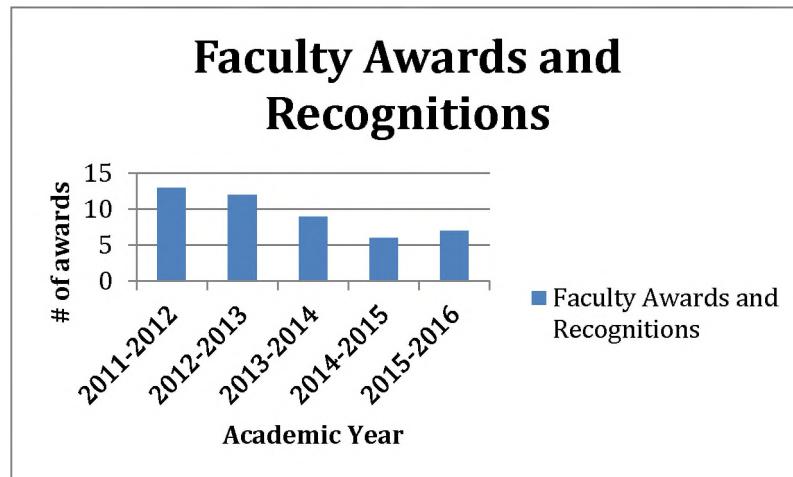
Hiring Process

CSUCI is using a cohort hiring process described here. Once awarded a position for the administration each program forms Disciplinary Search Committee, which screens candidates and interviews selected group on SYPE. Then only three candidates are chosen to visit campus. Campus visits are organized by administration and include candidates from all disciplines at the same time. All candidates and campus community meet at meals and everyone is invited to the job presentations. There is an interdisciplinary activity that puts 4-5 candidates from various disciplines together in a room with a task of designing an interdisciplinary, undergraduate course for students. The rest of the time is spend on interviews and with the program faculty. The system is very rigid and does not give programs any flexibility, often resulting with loosing excellent potential faculty.

Mentoring and Professional Development

Our department does not have a formal mentoring program for new faculty, however all of them are included and advised from day one. The chair meets with new faculty to explain aspects of the job related to RPT and policies and procedures related to instruction. In the first semester of employment faculty develop their Personal Development Plans following the approved programs standards.

Department staff also serves as a resource. All new full-time faculty are given offices in the same building that houses all of the other full-time faculty, so new faculty are in close proximity to more seasoned department members.

Evaluation of faculty follows program standards based on the university-established procedures. This is in accordance with collective bargaining agreement found here: http://www.calstate.edu/LaborRel/Contracts_HTML/CFA_CONTRACT/2014-2017/.

Professional Development Plans (PDPs)

All probationary faculty develop and annually update their professional plans as part of the RPT process following the Mathematics Program Standards, which expect excellent performance in teaching, research and certain level of service. Three research publications are expected for tenure. Faculty under review have their professional plans vetted by departmental RPT (sub)committees, the department chair, and the dean of the college. Recommendations are part of the review process. Associate professors update their plans and are reviewed after year 3 in rank and every 5 years after that. Full professors undergo post-tenure review every 5 years.

Recruiting and retaining diverse faculty

Currently, our tenure-track consists of 3 men and 5 women. For perspective, the latest 2013 data compiled by the American Mathematical Society on new US citizen PhDs in Mathematics reports a ratio of 73% men, 27% women. This ratio has been stable over the last decade. In our last tenure-track search, the applicant pool consisted of 95 applicants. 17% of the applicants were women. From that pool, we selected 31 applicants to look at more carefully. Of those candidates, 40% were women. We further narrowed the pool to a list of 12 phone interview candidates. 33% of the phone interview candidates are women. We requested on-campus interviews with 3 candidates, 2 of which were women. In the end, we made an offer one woman, which she has accepted.

We do not have any special programs within the department to recruit or retain diverse faculty beyond those required or provided by the University. However, our previous search resulted with hiring two Hispanic female mathematicians. Our department has very good diversity record, see chapter III B.

Summary and Reflection

In general, the needs for tenure track instructions in our program are not being met and majority of our courses are taught by lecturers and TAs. Note that campuses compatible in size to CSUCI typically employ around 20 tenure track mathematics. In addition, many of our faculty are getting significant grant/service/research buyouts of their teaching responsibilities. It is often

difficult to find qualified substitute lectures to replace this loss in teaching on an intermittent basis.

C.   DEPARTMENT STAFF AND ADMINISTRATION

Staff

Currently, we have one full-time staff positions shared with the Computer Science, Physics and IT programs. Our Business Analyst Ms. Jacky Connell (permanent position) is in charge of all the office issues, including faculty support, scheduling, purchasing, travel approvals, etc. While some of the graduate student issues are handled by the graduate office, many of the faculty and students issues come to the math office, which is overwhelmed with demands. The collaboration with the graduate school office is efficient and positive.

Program organization and procedures

Mathematics Program is organized by bylaws that describe program procedures and voting schemas, RTP process, committees, etc. The duties of the following officers are described in the document as well.

1. Chair of Mathematics and Applied Physics (elected)
2. Coordinator of Applied Physics Program
3. Director of Master of Science in Mathematics
4. Program Advisor
5. Developmental Math Coordinator
6. Lab Coordinator

Program faculty meets at least three times a semester (before each semester starts, at the end of each semester, and in sometimes the middle). However, faculty meets more often to address specific issues as needed (for example to work on program modifications, hiring committees, major grant discussions, etc.) Chair sends weekly/bi-weekly updates by email, and faculty has numerous discussions on-line. We also use Google docs for team document editing. For bylaws see Appendix F.

The Mathematics and Applied Physics Department holds departmental meetings to discuss major decisions. The Department will make every effort to achieve consensus. If consensus is impossible, a simple majority vote will institute Robert's Rules of Order. Announcement of an upcoming meeting involving an official vote is circulated in advance, and any faculty unable to attend may communicate his or her vote in advance of the meeting.

The MS in Mathematics Program Director uses the program meeting to discuss graduate issues or calls for separate meeting depending on the needs.

Summary and Reflection

Our office is under-staffed. We recently reviewed our office staff structure and made a proposal for new positions. We hope that the restructure achieves our goals of providing more efficient functioning of the department office, as well as a reinforced team-spirit environment where administrative responsibilities are more equitably distributed.

D. Facilities, Equipment, and Information Resources

Not much changed in the last six years. The undergraduate mathematics program was assigned six classrooms and we try to schedule our graduate courses there, as they have the necessary infrastructure. Mathematics has now permanent laptops labs and one PC lab, but we already have problems with course scheduling and testing in these spaces. We successfully collaborate with graduate school office on the scheduling.

Equipment and technology vs. program needs

As the current economy demands highly skilled, technology based mathematical thinking our mathematics courses relay heavily on technology. To assure the quality of instructions we need more computer labs. Especially our numerous statistics and business sections need access to professional software to deal with data analysis and mathematical modeling. Since everything is relatively new, existing spaces are adequately provisioned right now, with several white boards in each room. Funds to maintain the spaces are handled at the university level.

Information and technology resources

Mathematicians need access to scientific journals and software and at this time our library has provided sufficient support. We ask to keep the on-line access to scientific journals and sites intact in the future.

Summary and Reflection

Currently, our program biggest issue is the shortage of computer labs. We are lacking in collaborative space for faculty/student research as well as extra office space to temporarily house visiting scholars.

D.   FUNDING AND EXPENDITURES

MS in Mathematics program is self-funded and we operate through CI Extended Education office and meet the required funding standards. Most of the faculty teaching graduate courses are assigned WTUs as buyouts to the undergraduate programs.

We have not been engaged in significant fundraising efforts as a department, although individual faculty groups have had meeting with our director of advancement with ideas for specific fundraising initiatives. Success in the area has been limited. We'd like to extend and enhance this program with additional private outside support.

Summary and Reflection

The program generates enough funding to operate successfully. We would like to start some fundraising efforts in collaboration with the university foundation.

IV. Achieving Educational Outcomes

A. Student Learning Assessment

Masters Program assessment

Each student at our graduate mathematics under a supervision of an advisor has to write thesis, that include an original element (such as a proof, new example, data analysis, experiment calculations). Graduating students are required to make presentations to the entire department and answer questions. Presentations are scheduled at the end of each semester and are attended by faculty, students and their family and friends. In special sessions, thesis committees review students' papers, discuss them, ask for improvements and approve final versions. This process assures the quality of students work and evaluates students' performance on program learning outcomes. All TAs are evaluated **on their teaching performance** by faculty visiting their classrooms.

Meaningful results from assessments

All our graduate students are involved in research work with a faculty advisor. This seems to be an excellent way to get them into advanced mathematical thinking and prepare them for employment. All our students find mathematics related positions shortly after obtaining their MS degrees. Their research presentations are often accepted for conference presentations and/or publications, which testifies to the quality of our program.

Our TAs are attending one day training session on program standards and interactive learning at the beginning of each semester and are supervised by a faculty member throughout the semester. The assessment done on teaching skills of our TAs in this review period yields good results, supporting our philosophy of interactive, activity-based pedagogy. The Math 399 Labs often run by TAs turned out to be effective at every level, hence we plan to continue offering them.

Recommended improvements

We have to rely exclusively on IR for data and this often causes delays and not very useful data points. We need to build an internal ability to analyze departmental data to help with assessment. We have also begun to use Internet survey tools, which allowed us to solicit wider input. The biggest challenge is that high quality assessment activities require significant time and a consistency of those in the department conducting assessment.

Summary and Reflection

Our assessment shows that our teaching strategies are effective, the supplementary labs are helpful and the program meets and exceeds student outcomes. We are planning on conducting regular assessment activities to implement changes that will have positive impact on our program.

B.   STUDENT SUCCESS: ENROLLMENT, RETENTION, AND GRADUATION

The average percentage of enrolled URM students in graduate program in mathematics from 2010 to 2014 is 40% (which is also the percentage of URM students at CSUCI) with 5% of total being black, and the majority being Hispanic. The average percentage of enrolled Female students at CSUCI from 2010 to 2014 is 64% and 47% of math majors are female. Whereas the average percentage of enrolled Female students in graduate mathematics for the same period is 60%.

Summary and Reflection

Our diversity rates among students are above campus and nation averages. We need more stability in our FTF cohorts so that scheduling the lower and upper-division curriculum becomes more predictable.

C.   STUDENT ENGAGEMENT AND SATISFACTION

The graduate program has a social our right before the graduate seminar that is generally well attended by faculty and students. Informal comments about the program are solicited there. We often involve the math club and its officers in the campus events for new students, open houses, and parent and family weekend. The department chair meets occasionally with groups of graduate students, the math club president to solicit feedback on issues of student interest. Recently, student feedback has helped with the design of the new graduate student area. Student input has also been instrumental in vetting proposals related to the possible restructuring of the capstone experiences. Sometimes we survey our students asking for their perspectives on the program.

Summary and Reflection

Students seem to be satisfied with their experience at CSUCI. The previous program review supported this finding as well. Students are involved in departmental activities and are consulted when their input is needed. Based on student feedback, we have made the math minor more flexible and we have added or modified some of the options.

D.   GRADUATE SUCCESS

Employment and Further Education

Typically our students find position in local community colleges, companies in their second year of the graduate program or decide to continue to further their mathematics studies in PhD programs. A Southern California median starting salary of $75,000 for MS mathematician and shortage of employees with analytical skills makes it easy for our students to find positions within three month from graduation. About 40% of our students teach at community colleges or as lecturers at universities (for example California Lutheran University, Loyola Marymount University, Pepperdine University, CSUCI), 5% choose PhD programs, and 55 % take jobs (it is based on information for years 2010-14). Our MS students often take community college positions (40%), others find employment in government, software industry, finance, banking and

engineering.

Feedback from alumni.

We organized Facebook and Linked-in groups for all our students and alumni. We update them on the program issues and invite them to talks and events. Occasionally, we invite alumni to campus to give presentations to our students in Math 599 Graduate Seminar to talk about their professional experiences and research. Lately, we have averaged around two visits to the class by alumni each year. As examples, one our most recent alumni visits were from a graduate who is just graduated from a Ph.D. program in mathematics in differential geometry, and another alumni who works as a mathematician for the Navy base.

Summary and Reflection

Our students stay in touch with the campus, but we need a better mechanism to contact and survey our alumni.

V. Creating an Organization Committed to Learning and Improvement.

A.   FUTURE OF THE FIELD AND CAREER OPPORTUNITIES

The Mathematics Department sees itself serving in a similar role within CSUCI for the next 15 years – as a core program for all science and engineering programs, supporting social sciences and statistics related majors and minors, as well as a vital player in research, interdisciplinary collaborations and students activities. However, it is expected that the number of mathematics students at all levels will increase in a manner commensurate with the projected growth in overall enrollment at CSUCI and the demand for STEM majors by industry. We expect some expansion of the Master's Program, as the demand for highly mathematically trained employees is predicted to increase. In the long term, the Bureau of Labor Statistics predicts that the entry-level degree for mathematics professionals will eventually be the Master's degree. The increasing prominence of data science, computers, applications to medicine and sciences, as well as financial applications may require us to rethink aspects of our applied mathematics concentration.

B.   PROGRAM CAPACITY

At this point in time, we are meeting the needs for resources to meet demand for our graduate program. At this time we need more faculty with PhDs is certain fields. Moreover, expected enrollment growth and increased demand for STEM professionals, including collage faculty, will require additional resources. Right now, we can increase the size of our Master's degree program

with little additional cost. However, our ability to offer financial support in the form of TA appointments is becoming more limited. Increasing our Master's degree program will require targeted recruitment efforts to attract qualified applicants.

VI. Conclusions

A. SIGNIFICANT FINDINGS

Program Strengths

1. We have a strong and comprehensive graduate curriculum in mathematics. Our core, flexible electives and thesis units provide opportunity for more focused training in pure and applied mathematics as well as mathematics education.

2. Our graduate program produces graduates who have done very well in getting teaching positions and industry positions.

3. We are currently able to offer most graduate students TA positions, which give them "learn-by doing", experience in the classroom as well as needed financial support.

4. We have been able to hire and retain high-quality faculty who are talented teachers and successful researchers and professionals. All recent eligible hires have been successful at attaining tenure and promotion.

5. Students' activities and research are currently supported.

6. We have good collaborative working relationship with graduate school and other offices and constituencies on campus, which enables CSUCI to most effectively meet the needs of our students.

Areas for Improvement

1. Our ability to offer more resources for faculty to be successful in the area of scholarship needs to be augmented.

2. Our program needs to integrate some of the newer growth areas of applied mathematics such as data science and engineering applications.

3. We should focus additional attention to the graduate program in the near future so that we are prepared to meet the expected increase in demand for Master's degrees in mathematics.

B. LOOKING FORWARD: STRATEGIC THINKING ABOUT MS PROGRAM IN MATHEMATICS

Goals for the next six years

1. Work with administration on improving the computer lab situation.

2. Provide faculty of all ranks more time to focus on professional and scholarly activities.

3. Focus on improving and expanding our graduate program.

4. Continue to work with other constituencies on campus in developing targeted programs to improve student success in mathematics using strategic data.

5. Find additional space to facilitate faculty/student collaboration and research activities.

Issues to be addressed in the action plan

1. Improve assessments of the program using embedded questions and student presentations and use it as a basis of a discussion of graduate curriculum.

2. Create a GRE workshop for students intending to go to PhD programs.

3. Develop a viable plan to provide faculty of all ranks more time to focus on professional and scholarly activities.

VII. Appendices

A.   Program by-laws
B.   Faculty CVs

Bylaws of the Mathematics and Applied Physics Program

I. Unit Definition

The Mathematics and Applied Physics Department comprises the faculty appointed in the areas of Mathematics and Applied Physics and includes the following degree programs: Bachelor of Science in Mathematics, Bachelor of Science in Applied Physics, and Master of Science in Mathematics. The program also houses minors in Mathematics, Foundational Mathematics, Applied Physics and A California Commission on Teacher Credential (CCTC)-approved Mathematics Subject Matter Waiver Program. All courses carrying the prefixes MATH, PHYS and PHSC are offered through the Mathematics and Applied Physics Department.

II. Unit Mission Statement

The Mathematics and Applied Physics programs support the four pillars of the CSUCI mission by offering a cutting edge, 21st century technology-based education that is relevant to needs of the local and global communities. Our programs strongly support faculty research, collaborations with various academic, industrial, governmental and educational entities, student involvement in research projects, and preparation for careers in industry, research or education.

Mathematics can be pursued as a scholarly discipline of an especially elegant and creative art form or it can be treated as a valuable tool in an applied discipline. Our program addresses both needs. Students are given a strong background in mathematics and statistics as well as a substantial amount of interdisciplinary applications and exposure to research projects.

Applied Physics is the interface between science and technology, between laboratory and industrial practice. It is an interdisciplinary undertaking, interacting with mathematics, science and engineering. Our students are given a strong background in physics so they will make meaningful contribution to modern, interdisciplinary investigations and will have the flexibility to adapt to changing technological requirements.

III. Unit Membership and Administrative Assignments
- **Officers**
  - Chair of Mathematics and Applied Physics
  - Coordinator of Applied Physics Program
  - Director of Master of Science in Mathematics
  - Program Advisor
  - Developmental Math Coordinator
  - Lab Coordinator

- **Officer Responsibilities**

Bylaws of the Mathematics and Applied Physics Program

- o The chair oversees the operations of all degree programs within the Mathematics and Applied Physics Department and fulfills all personnel-related functions for all faculty within the programs. Other duties of the chair are those spelled out in the *Handbook on the Roles and Responsibilities of Program Chairs.*
- o The Coordinator of the Applied Physics Program handles those duties as they relate to the BS degree and the minor in Applied Physics. The coordinator serves as advisor to the students in the major and the minor, however, he may share his duties with other faculty. Other duties of the Coordinator of Applied Physics Program are those spelled out in the *Handbook on the Roles and Responsibilities of Coordinators.*
- o The Director of Master of Science in Mathematics Program oversees the operations of the MS Math Program. This includes fielding queries from prospective students, assessing applications for admission, advising students within the program, scheduling courses and instructors in conjunction with the Chair, maintaining the program website (particularly regarding course and program information), and working with university personnel to ensure that the policies of the program are carried out.

- **Officer Terms and Term Limits**
  - o The Chair serves a 3-year term. A faculty member serving as chair should be tenured.
  - o The Coordinator of Applied Physics Program serves a 1-year term, and may serve an unlimited number of terms.
  - o The Director of Master of Science in Mathematics Program serves a 2-year term. A faculty member serving as director should be tenured, and may serve an unlimited number of terms.
    - o A chair may serve no more than 2 consecutive terms. If no other faculty members are eligible and/or willing to serve, the term limit may be suspended.
  - o

- **Election of Officers**
  Tenured faculty in the Department are eligible to stand for election as chair. The elections will take place in the Spring semester of the last year of the current chair's term. The call for nomination will occur at least two weeks before the elections, and the list of nominees will be circulated to all faculty in the programs (tenured and probationary), with notice that the vote will be held between certain dates. On the first day of the election, the programs' support coordinator will distribute ballots to all faculty eligible to vote.
  The Coordinator of the Applied Physics Program is appointed by the dean upon the recommendation of the chair. The Director of Master of Science in Mathematics Program is appointed by the chair after all program faculty have been provided an opportunity to consult with the chair.

- **Process by which officers are recommended to the Dean and Provost**
  - For Chair: The results of the vote for chair will be forwarded to the dean by the volunteer faculty specified in the section titled Election of Officers.
  - For Coordinator of Applied Physics Program: after providing an opportunity for consultation to the Physics faculty, the Chair will recommend the candidate of the Coordinator of Applied Physics Program to the Dean no later than the beginning of finals week of each relevant Spring semester.

- **Voting Rights**

All Program faculty members are allowed to vote in chair elections. Tenured and probationary faculty members each have one full vote (those holding joint appointments in another program have a vote in proportion to their Program workload). Full and part time lecturer faculty vote weight is counted according to their annual time base in teaching Program courses as follows:

.1-7.5 WTUs = .25 vote

7.6-15 WTUs = .5 vote

15.1-22.5 WTUs = .75 vote

22.6-30 WTUs = 1.0 vote

- **Votes of Confidence/ No Confidence**

  Any tenured or probationary faculty member may call for a vote of no confidence in the Chair, the Coordinator of the Applied Physics Program or the Director of the Master of Science in Mathematics Program. The call may be made at any regularly scheduled faculty meeting, or at a meeting called for the purpose by any tenured or probationary faculty member. A vote of no confidence will be taken by secret ballot by the same procedure specified for the elections. The results of a vote of no confidence in the Chair will be reported to the Dean.

- **Officer Evaluation**

The Chair will be evaluated in the Spring semester of her/his second year in office, following the Chair Evaluation Policy approved by the Academic Senate. The Coordinator of Applied Physics Program and the Director of Masters of Science in Mathematics Program will be evaluated in the Fall semester of her/his second year in office by surveying the program faculty.

IV. Other Unit Assignments

- **Process for Advising Assignments**
  Student Advisors, the Developmental Mathematics Coordinator, the Mathematics Lab Coordinator, and the CCTC Advisor, as well as other assignments that may be developed,

will be appointed by the Chair on a semester-to-semester basis. The Coordinator for the Applied Physics Program will, as part of her/his duties as coordinator, advise all Applied Physics majors and minors, or share these duties with other faculty members.

- **Process for Assessment Assignments**
  The Program Chair will assign assessment tasks to various faculty, after taking their workloads into consideration.

V. **Unit Faculty**

- **Process to constitute the Program Personnel Committee (PPC)**
  The PPC will be constituted according to the process outlined in the Program Personnel Standards (PPS). The PPC(s) within the Program will be reconstituted or reaffirmed each year.

- **Process to create and amend the Program Personnel Standards (PPS)**
  All tenured and probationary faculty in the specific program may participate in revising the Program Personnel Standards. After faculty vote on adopting a PPS, the document will be forwarded to the Office of Faculty Affairs to begin the review process.

- **Number of classes evaluated**
  For the first four semesters of employment all new faculty will administer student evaluations in all their sections, with the exceptions of classes numbered 490 - 499, 399, and of the 94 and 95 labs. New faculty teaching these classes may elect to evaluate them, but are not required to do so. After four semesters, faculty will administer student evaluations in at least two sections per year.

- **How classes are evaluated**
  Student evaluations of teaching shall be administered according to the university's policy. All faculty will have a minimum of one peer observation of a class per academic year.

VI. **Other Unit Decisions**
  The Mathematics and Applied Physics Department will hold departmental meetings to discuss other decisions. The Department will make every effort to achieve consensus. If consensus is impossible, a simple majority vote will institute Robert's Rules of Order. Announcement of an upcoming meeting involving an official vote will be circulated in advance, and any faculty unable to attend may communicate his or her vote in advance of the meeting.

Bylaws of the Mathematics and Applied Physics Program

Issues requiring an official vote include adoption of bylaws, and decisions affecting RTP, curriculum, hiring, honors, and department representation.

- **Criteria for Program Honors**
  Students may be nominated for Program Honors by any faculty member, tenured, probationary, or temporary. Students must have a minimum 3.0 GPA overall, and a minimum 3.5 GPA in the program to qualify. Nominated students will be informed of their selection by the Chair. Subsequently, all tenured and probationary faculty will vote on the students to receive Program Honors. Each faculty member will have two votes. The highest vote getters will be awarded Program Honors.

- **Participation of FERP Faculty**
  FERP faculty are eligible to participate in the shared governance of the Department through participation in meetings and serving on committees. FERP faculty are not eligible to serve as Chair. FERP faculty are eligible to serve on Program Personnel Committees.

- **Process to amend unit bylaws**
  Any tenured or probationary faculty member wishing to propose an amendment to these bylaws may do so at a regularly scheduled faculty meeting of the Department, or at a special meeting called for the purpose. Amendments shall be approved by a 2/3 majority of the tenured and probationary faculty in Mathematics and Applied Physics.

VII. **Unit bylaws shall be approved by a 2/3 majority of the tenure track faculty in the unit.**

VIII. **Unit bylaws shall be approved by the appropriate Dean.**

IX. **Unit bylaws shall be approved by the Provost.**

Cynthia J. Wyels

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Education

Ph.D. in Mathematics, University of California, Santa Barbara, CA.

M.S. in Mathematics, University of Michigan, Ann Arbor, MI.

B.A. *cum laude*, Honors in Mathematics, Pomona College, Claremont, CA.

Research Interests

Intersections of matrix theory, linear algebra, and combinatorial mathematics: graph pebbling, graph labeling, primitive matrices, graph connectivity, and permutation inequivalence. Guiding students through multidisciplinary applied projects. Developing skills in data analysis, particularly as applies to environmental datasets.

Academic Positions

Professor of Mathematics, CSU Channel Islands, Camarillo, CA. 9/05 – present.
    Began as Associate Professor; promoted to Professor 9/10.
    Director, MS Math Program, 9/05 – 8/12; Interim Chair, S'08; Interim Co-Chair, S'16.

Associate Professor, California Lutheran University, Thousand Oaks, CA. 9/96 – 8/05.
    Began as Assistant Professor; promoted to Associate Professor and elected to tenure, 3/01.
    Chair of Mathematics and Physics 7/01 – 8/04; Chair of Mathematics 8/04 – 8/05.

Visiting Scholar, Mesa State College, Grand Junction, CO. 1/03 – 5/03.

Visiting Assistant Professor, Weber State University, Ogden, UT. 8/95 – 6/96.

Assistant Professor, United States Military Academy, West Point, NY. 7/94 – 8/95.

Peer-Reviewed Publications (* designates undergraduate co-authors)

The radio number of $C_n \square C_n$ (with M. Morris-Rivera*, M. Tomova, A. Yeager*), accepted for publication in *Ars Combinatoria.*

REU design: broadening participation and promoting success (with R. Garcia), *Involve, a Journal of Mathematics* 7-3 (2014), 315--326. DOI 10.2140/involve.2014.7.315.

A gap in the achievable radio numbers (with D. Canales*, M. Tomova), *AKCE International Journal of Graphs and Combinatorics*, **10** No. 4, (2013), 349 – 357.

Developing Cultural Literacy in the STEM Disciplines (with J. Balén, N. Deans, B. Gillespie, N. Parmar, B. Rasnow), *The Journal of Multiculturalism in Education* **8**(1) (2012), 1-19. https://www.wtamu.edu/journal/volume-8-number-1.aspx

Radio numbers of some generalized prism graphs (with P. Martinez*, J. Ortiz*, M. Tomova), *Discussiones Mathematicae Graph Theory* **31**(1) (2011), 45 – 62.

Pebbling graph products (with M. Tomova), *Ars Combinatoria* **98** (2011), 493 – 499.

The N-Queens problem on a symmetric Toeplitz matrix (with M. Tomova, Z. Szaniszlo), *Discrete Mathematics* **309** (2009), 969 – 974.

Introducing Undergraduates from Under-Represented Minorities to Mathematical Research: the CSU Channel Islands/ California Lutheran University REU, 2004 – 2006, *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, J. Gallian, Ed., American Mathematical Society, 2007, 27 – 32.

Support, Managing, Philosophical, *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, J. Gallian, Ed., American Mathematical Society, 2007, 363 – 364.

Engaging Students via In-Class Worksheets, *The Innovative Teaching Exchange*, http://www.maa.org/t_and_l/exchange/exchange.html, June 2006.

On the number of arcs in primitive digraphs with large exponents (with Jian Shen), *Linear Algebra and its Applications* **364** (2003), 243 – 251.

Permutation equivalence and the Hermite invariant, *Linear Algebra and its Applications* **256** (1997), 125 – 140.

Chaotic properties of one dimensional dynamical systems (with T.H. Steele), *Encyclia*, 1997.

Counting paths and simple paths in graphs, *Proceedings of the Third Annual U.S. Army Research Laboratory/ U.S.M.A. Technical Symposium* (1995), 164 – 177.

The Hermite invariant as graph invariant, *Congressus Numerantium* **111** (1995), 65 – 76.

Assorted Other Publications

Achievable Pebbling Numbers (with A. Higgins, B. Higgins), manuscript under revision.

Radio labeling Cartesian products (with S. Fournier*, F. Garcia*, A. Juarez*, C. Mendoza*, M. Nava*, and M. Tomova), manuscript under revision.

Optimal pebbling of paths and cycles (with T. Friedman), math.CO/0506076. Regularly cited.

The radio number of gear graphs (with C. Fernandez*, A. Flores*, M. Tomova), arXiv:0809.2623. Frequently cited.

Cover photography credit, *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, J. Gallian, Ed., American Mathematical Society, 2007.

¡Viva la Educación! (with J. Gregory), *CLU Magazine* **10**, vol. 3 (2003), 16 – 18.

Select Presentations since 2010; international presentations

How to successfully flip your classroom, invited Project NExT panelist, Joint Mathematics Meeting, Seattle, Jan. 6, 2016.

STEM Student Success Intervention Programs, 7th Annual HSI/ Title V Best Practices Conference, San Antonio, TX, March 9, 2015.

Engaging in Undergraduate Research: from funding to publishing, invited Project NExT panelist, Joint Mathematics Meeting, San Antonio, Jan. 11, 2015.

Mentoring in the Mathematical Sciences, invited panelist, Underrepresented Students in Topology and Algebra Research Symposium (USTARS), Purdue University, West Lafayette, IN, Apr. 20, 2013.

Asking Questions: Graph Parameters, Extending Questions, and Large Cetaceans, Invited Guest Speaker, Whittier College Pi Mu Epsilon Induction, Whittier, CA, Apr. 9, 2013.

Graduate School: Choosing One, Getting In, Staying In, invited panelist, Joint Mathematics Meeting, San Diego, January 10, 2013.

The Benefits of Research with Undergraduates for Faculty, invited panelist, Joint Mathematics Meeting, San Diego, Jan. 10, 2013.

Establishing Undergraduate Research Programs, invited Project NExT panelist, Joint Mathematics Meeting, San Diego, January 9, 2013.

Engaging Students from Underrepresented Groups, invited panelist, Trends in Undergraduate Research in the Mathematical Sciences, Chicago, October 27, 2012.

Graph Parameters and Beyond: Crafting Questions for Research, Keynote Speaker, Spuyten Duyvil Undergraduate Mathematics Conference, Ramapo College, New Jersey, April 14, 2012.

Unexpected Adventures and Undergraduate Research, Presentations by Haimo Teaching Award Winners, Joint Mathematics Meeting, Boston, January 6, 2012.

Graph parameters: a rich source of open questions, CSU Long Beach Mathematics Colloquium, Long Beach, December 2, 2011.

Unexpected Outcomes in Undergraduate Research, invited plenary speaker, So Cal-NV Section of the Mathematical Association of America, Fall Meeting, CSU Los Angeles, October 15, 2011.

Radio Labeling Cartesian Graph Products, 9th Cologne-Twente Workshop on Graphs and Combinatorial Optimization, Cologne, Germany. May 25 - 27, 2010.

Etiquetas radio de productos Cartesianos de gráficas, Tercera Reunión de la Universidad Autónoma del Estado de Hidalgo y CSU Channel Islands, Pachuca, Hidalgo, Mexico. May 21, 2008.

N-Queens Problems, Segunda Reunión de la Universidad Autónoma del Estado de Hidalgo y CSU Channel Islands, Camarillo, CA, June 13, 2007.

Empedrados en Gráficas, Primera Reunión de la Universidad Autónoma del Estado de Hidalgo y CSU Channel Islands, Pachuca, Hidalgo, México, March 24, 2006.

Graph Labelings: Questions and Connections, Primera Reunión de la Universidad Autónoma del Estado de Hidalgo y CSU Channel Islands, Pachuca, Hidalgo, México, March 20, 2006.

Grants Since 2010; select earlier grants

Department of Education Hispanic-Serving Institutions grant, Project PROMESAS, $6M, proposed for 2016 – 2021 (one of three individuals carrying out all planning and writing), pending.

Mathematical Association of America – Tensor SUMMA: *Broadening the Pipeline: the CSU Channel Islands Mathematics REU* (with Geoff Buhl). Supporting participation of two AB540 students / Dreamers, 2015, $4,000

National Science Foundation – REU Site: *Research Experiences for Undergraduates at CSU Channel Islands* (DMS- 1359165), PI; Director; Faculty Research Mentor. 2015 and 2017, $280,000

CSU Alliance for Preparing Undergraduates through Mentoring towards PhDs (PUMP), *Undergraduate Research Group*. PI and Faculty Research Mentor. Funded academic-year research project with two undergraduates. AY13-14, $11,000

National Science Foundation – *California State University-Louis Stokes Alliance for Minority Participation* (CSU-LSAMP; HRD-1302873), PI: Frederika Harmsen. Participated in planning; wrote CI's contribution; direct CI-LSAMP. 2013 – 2018, $2,400,000

National Science Foundation – *CSU Alliance for Preparing Undergraduates through Mentoring towards PhDs (PUMP)*, PI: M. Helena Noronha. Proposal co-author and member of 8-campus leadership group. 2013 –2018, $817,149

Department of Education Hispanic-Serving Institutions grant, *Project ACCESO*, PI: Phil
Hampton. Co-PI and Director of ACCESO Student Success Programs; proposal co-author;
leadership team. 2011 – 2016, $6,000,000

National Science Foundation – REU Site: *Research Experiences for Undergraduates at CSU
Channel Islands* (DMS-1005140). PI; Director; Faculty Research Mentor. 2010 – 2012,
$354,978

Mathematical Association of America – SUMMA (Strengthening Underrepresented Minority
Mathematical Achievement): six *Summer Research Experience for Minority Undergraduates*
grants. PI; Faculty Research Mentor. Supported 4 – 6 undergraduates annually. 2004 – 2009,
$25,000 - $29,000 each year

Mathematical Association of America: four *Diversity Initiative* grants to send 2 – 5 minority
students to the Joint Mathematical Meetings annually. PI. 2006 – 2010, ~$4500

National Science Foundation – California State University-Louis Stokes Alliance for Minority
Participation (CSU-LSAMP; HRD-0802628), PI: Juanita Barrena. CI's liaison during
planning sessions; co-wrote CI's contribution; directed CI-LSAMP. 2008 – 2013, $4,900,000

California Mathematics and Science Teachers Initiative. PI: Jeanne Grier. Co-PI. 2006 – 2008,
$120,000

English Language Development Institute in Mathematics Content (jointly to the CLU/ CSUCI
Mathematics Project and the Tri-Counties Mathematics Project). Proposal co-author; Faculty
Advisor. 2003, $70,000

California Subject Matter Project (to the CLU/ CSUCI Mathematics Project). Proposal co-
author; one of two Faculty Advisors. 2002 – 2005, $308,000

Mathematics Professional Development Institutes (to the CLU Mathematics Professional
Development Institute). Proposal co-author; Faculty Advisor. 2001 – 2003, $220,000

Honors since 2010

- Maximus Faculty Nominee, CSU Channel Islands, 2016.
- EOP Faculty Nominee, CSU Channel Islands, 2016.
- Maximus Faculty Award, CSU Channel Islands, 2014
- President's Award, Ventura County Mathematics Council, 2013
- CSU Channel Islands Business & Technology Partnership Faculty Leader of the Year, 2013
- The Deborah and Franklin Tepper Haimo Award for Distinguished College or University
  Teaching of Mathematics, Mathematical Association of America, 2012
- Award for Distinguished College or University Teaching of Mathematics. Mathematical
  Association of America, Southern California – Nevada Section. 2011

Select Service

Mentoring–of students and recent alumni; of CI and national faculty colleagues
- **Students**
  - Research Mentor for 75 undergraduates (academic year or intensive summer research experiences) and 8 masters students (masters theses)
  - LSAMP Faculty Director since 2010: intensive mentoring of about 20 STEM students annually
  - Informal advisor/ guide to dozens of students annually, particularly STEM students
  - Project ACCESO work includes conversations with students in STEM Center
  - Continue to support recent graduates in graduate school and job applications, identifying opportunities, early career grant writing
  - Alliance Mentor in the National Alliance for Doctoral Studies in Mathematics
- **Faculty at CSU Channel Islands**
  - Mentoring through service on Program Personnel Committees (PPCs): Bañuelos, Buhl, Elliott, Flores, Garcia, Leonard (all in Mathematics); Cook, Pereira (Library Faculty); Downey, O'Connor (Sociology); Mayberry (English); Perry (Anthropology); Tollefson (Education); Wood (Applied Physics)
  - Mentor within CI Faculty Mentoring Program to individuals in 2013 and 2015 cohorts (Anthropology and Biology; ongoing)
  - Informal mentor: multiple "coffee meetings" and walks, class observations and follow-up conversations, or other peer-peer sharing of some duration with 11 of the faculty in the PPC list above as well as with faculty in Communication (2), Art (1), Biology (3), Chemistry (3), Mathematics (6)
  - Critical Friends Group: co-founded and led multidisciplinary group of faculty focused on exploring own teaching and learning from group members and literature, F'06 – F'10.
- **External Faculty and Graduate Students**
  - Mentor for multiple early career mathematicians at institutions around the country: most are Latina/o: Guidance through challenging work situations; reviewing job application materials and grant proposals; supporting tenure and promotion applications; identifying funding and publishing opportunities; hosting as speakers at CI; consulting on student research projects, etc.
  - Project NExT (New Experiences in Teaching): National Mathematics Professional Development Program (60 Fellows admitted annually): Consultant (Mentor) to 2009, 2011, and 2013 cohorts; participation ongoing
  - Underrepresented Students in Topology and Algebra Research Symposium (USTARS) Board: organization for Ph.D. students and early career faculty in Topology and Algebra; organization provides supportive network, facilitates research collaborations. Board member: interact with members; advise officers on organization direction, finances, etc.

Undergraduate Research
- **Engaging in Undergraduate Research**
  - See "Grants" particularly NSF REU site (2), MAA SUMMA (6), PUMP.

- o Faculty mentor through NSF REU site, MAA SUMMA programs, Project ACCESO Summer Research Institute, PUMP academic year research, ad hoc research groups.
- **Developing a Culture of Undergraduate Research at CI**
    - o See "Grants" particularly NSF REU site (2), MAA SUMMA (6), PUMP.
    - o Founder, CI Celebration of Student Research, May 9, 2008 (This became the annual Sage Student Research Symposium.)
    - o Founded the Student Summer Research Showcase, an event to celebrate CI students who obtained positions in REU/ REU-like programs and inform/ inspire other students; 2013 and ongoing
    - o CSU Student Research Competition: Facilitated CI participation from 2008 – present; institutionalized process for selecting participants; wrote IRA grants to fund student travel
    - o CI Goldwater Representative, 2008 – 2011 (initiated CI Goldwater involvement; developed method and institutionalized method for selecting and supporting institutional nominees)
    - o Student Research Task Force, AY07-08: Institutionalized faculty-mentored student research as funded curricular entity
    - o Student Research Steering Council: member since inception; chair for two years
    - o ACCESO Summer Research Institute: developed selection process; directed in 2013
- **Promoting Undergraduate Research Nationally**
    - o See "Select Presentations"—many invited talks sharing topics and best practices for undergraduate research
    - o NSF-funded REU: Development of Early Career Mentoring program to mentor faculty in best practices for undergraduate research with heterogeneous groups
    - o Organized nine annual judged regional Mathematical Association of America (MAA) Student Poster Sessions; organized judging, 2003-2011
    - o Judge student poster sessions at SACNAS national conference annually since 2011; judge student poster sessions at (national) Joint Mathematics Meetings and regional MAA meetings

Broadening Access–to success in higher education, to STEM, to graduate study and careers
- See "Mentoring" particularly LSAMP, Project ACCESO, USTARS, National Alliance and efforts with individual Unexpected Students and Faculty
- See "Undergraduate Research" particularly REU design and philosophy, PUMP.
- Created the ACCESO Summer Scholars Institute, a 4-week science, mathematics, and university transition institute for incoming first-year Unexpected Students intending majors in STEM fields.
- Organizer, *African-American Women in STEM: The Trek Beyond the Ph.D.*, S'16, small group conversations, meet-and-greet, three research overviews, panel, reception.
- Organizer, *Campus Climate Lunch*, S'16: Lunch and focused conversation between CI faculty, administrators, and guests on enhancing the campus climate for faculty of color
- Organizer, *Sí, se puede: Four Latina Recent Math PhDs Share their Journeys*, S'15. Reception, four research overviews, panel. Jointly organized with Drs. Selenne Bañuelos and Cynthia Flores; Oxnard College and Ventura College students engaged.
- Organizer, *Dr. Carlos Castillo Chavez Event*, S'14: internationally renowned mathematical biologist and mentor of under-represented students (holder of Presidential

Award for STEM Mentoring) – two talks at CI, panel with CI Faculty Mentoring Program, events with community college partners
- SACNAS Life Member; attend national conference annually; interact with Sacnistas
- Translator: formal and ad hoc Spanish-English translation at closing ceremonies of ACCESO Summer Research Institute and ACCESO Summer Scholars Institute; ensure monolingual parents feel welcome and included

Building and Stabilizing the Institution–providing leadership
- Developed and implemented Peer-Led Team Learning at CI; program now provides PLTL workshops for 14 distinct courses.
- University service (extensive committee and task force service, including Chair of Rank, Tenure, and Promotion Committee (twice), Senate Vice-Chair for three terms, Senate Secretary for three terms, Senate Executive Committee At-Large member, Chair of Student Policies and Procedures Committee, Student Success Partnership member, Student Research Steering Council, Faculty Athletics Representative, numerous Task Forces, etc.)
- Hiring Committees: Dozens of faculty hiring committees across nine disciplines; hiring committees for 5-10 staff positions; seven administrator search committees
- Created the ACCESO Summer Scholars Institute, a 4-week science, mathematics, and university transition institute for incoming first-year students intending majors in STEM fields.
- Curriculum development and course creation
  - Courses created: Topology, Graduate Combinatorics, Geometry, Number Theory (co-created), Mathematical Thinking, The Advanced Mathematics Sampler, The Art of Mathematical Thinking, Topics in Liberal Arts Mathematics, Algorithms for Arithmetic; others revised
  - Revised CI's Calculus I and II curriculum to introduce technology (awarded equipment grant from Hewlett Packard to provide laptops and thus impetus)
  - Revised Calculus III curriculum

Select Other Relevant Experiences, Skills, and Interests

Professional Memberships and Committees
- Mathematical Association of America (since 1985); Institutional Liaison (since 1996); Early Career Mathematicians Committee 2012 – 2016; Board member of the So Cal-NV Section and Student Chapters Coordinator, 2003 – 2011.
- American Mathematical Society (since 1989)
- Association for Women in Mathematics (1989 – 1995; since 2014)
- SACNAS (since 2011) now a Life Member

Faculty Advisor and Presenter, California Mathematics Project. 6/02 – 8/05

Co-Director, California Mathematics Professional Development Institute, 6/01 – 12/02

Co-led 8-day student trips to Mexico (2006 and 2008)

Foreign Languages: Proficient in Spanish, German, and French. Several invited hour-length conference presentations made in Spanish; past research students mentored in Spanish.

Technology Skills: Currently learning and conducting research using R. Research-related applications written in C, Pascal, Mathematica, and Maple. Dozens of computer labs for Calculus (all levels), Linear Algebra, Differential Equations, Scientific Computing and other upper division mathematics classes written. Experience using computer algebra systems and calculators to enhance classroom learning. Proficient with all standard office software and web page creation. Created and maintained web pages for CSUCI Masters in Mathematics Program while Director of MS Program; created and currently maintaining ACCESO Student Success pages; maintaining LSAMP and CI Mathematics REU pages.

Other interests: languages and travel, outdoor sports, reading, classical music.

Selenne H. Bañuelos

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California State University - Channel Islands

Department of Mathematics, BTE 2811

One University Drive

Camarillo, Ca 93012

Fields of Interest:

Ordinary Differential Equations, Difference Equations, Dynamical Systems, Mathematical Modeling, Mathematical Biology

Employment:

8/2014 – present	Assistant Professor, *Department of Mathematics,* **California State University - Channel Islands**, Camarillo Ca.
8/2013 – 5/2014	Lecturer, *Department of Mathematics,* **University of Southern California**, Los Angeles, Ca.
6/2013 – 7/2013	Math Faculty, *Draper Center PAYS program,* **Pomona College**, Claremont, Ca.

Education:

2007 – 2013	**University of Southern Califronia**, Los Angeles, Ca. Ph.D. in Applied Mathematics, August 2013. Advisor: Robert Sacker
2003 – 2007	**University of California, Santa Barbara**, Santa Barbara, Ca. B.S. in Mathematics, magna cum laude, June 2007.

Scholarships and Awards:

Cornell Summer Math Institute Alumni Travel Scholarship, funds for travel and lodging to attend and present at the August 2014 SIAM Conference on the Life Sciences.

SACNAS Travel Scholarship, funds for travel and lodging to attend and present at the October 2013 SACNAS National Conference.

Diversity and Outreach Grant, travel funds for recruiting during the October 2013 SACNAS National Conference.

Travel Grant, USC Mathematics Department
Travel Grant, International Society of Difference Equations and Applications
Travel Grant, Enhancing Diversity in Graduate Education (EDGE) at USC
funds for travel and lodging to attend and present at the May 2013 International Conference on Difference Equations and Applications

Dennis Ray Estes Graduate Teaching Prize, University of Southern California Mathematics Department, Spring 2013

University Outstanding TA Award Nomination, University of Southern California, Fall 2012

Provost's Ph.D. Fellowship, University of Southern California, 2007 – 2012

Fellowship to Accommodate Pregnancy, University of Southern California, Women in Science and Engineering program (WiSE), Spring 2012.

Graduation Student Marshal, University of California, Santa Barbara, Spring 2007

Nomination for Valedictorian, University of California, Santa Barbara, Spring 2007.

SACNAS Travel Scholarship, funds for travel and lodging to attend and present a research poster at the October 2006 SACNAS National Conference.

Research Experience:

Women in Applied Mathematics (WhAM!) Program Participant   9/13 –
*Special Workshop, IMA.***Modeling the Dynamics of REM Sleep.** We have developed a model for REM and NonREM dynamics with sleep/wake cycling by building on recent neurophysiological models. We are currently using this model to explore some current hypothesis concerning the regulation of REM sleep such as - thermoregulation and energy management determine REM bout durations. We are currently using methods from dynamical systems and numerical simulations. This project is a collaboration with Janet Best, Gemma Huguet, Alicia Prieto-Langarica, Pamela Pyzza, Markus Schmidt, and Shelby Wilson.

Graduate Research   8/07 – 5/13
Department of Mathematics, University of Southern California. Working with monotone concave maps in higher dimensions and its applications to mathematical biology. In particular, used the semigroup property of a class of such mappings to develop theory for the study of a periodically varying discrete time system. Applied my work to a two-stage (juvenile and adult) model with migration between locations to determine conditions on the parameters for which the system has a nontrivial stable stationary state.

SMI Program Parcticipant   Summer 2006
Summer Math Institute (SMI), Cornell University. Participated in a summer mathematics program aimed to prepare undergraduate students for graduate school. Was part of a group of 5 whose research topic was the bifurcation analysis of the Morris-Lecar model, a biological neuron model. Covered topics such as differential equations, stability theory, and bifurcation theory; attended daily afternoon lectures and computer lab sessions. This project was under the supervision of Joseph H. Tien.

Peer Reviewed Publications:

"Effects of Thermoregulation on Human Sleep Patterns: A Mathematical Model of Sleep/Wake Cycles with REM/NREM Subcircuit," (accepted) *Applications of Dynamical Systems in Biology and Medicine, IMA Volume, Springer*, with Janet Best, Gemma Huguet, Alicia Prieto-Langarica, Pamela Pyzza, Markus Schmidt, and Shelby Wilson.

Presentations:

"Modeling the Effects of Temperature in Human Sleep Patterns"
November 2014   CSUCI Mathematics Graduate Seminar,   Camarillo, California.

"A Mathematical Model of Wake/NonREM/REM States"
October 2014   SACNAS Annual Conference,   Los Angeles, California.
August 2014   SIAM Conference on the Life Sciences,   Charlotte, North Carolina.

"Semigroups of Maps and Higher Dimensional Periodic Difference Equations: An Application to a Structured Two-Stage Population Model with Migration"
October 2013   SACNAS Annual Conference,   San Antonio, Texas.
May 2013   International Conference on Difference Equations and Applications,
                                                Sultan Qaboos University, Muscat, Oman.

"Two-Stage Population Model with Migration Between Two Locations"
October 2012   Annual Southern California Women in Math Symposium,   USC.

Poster: "Bifurcation Analysis of Morris-Lecar System"
October 2006   SACNAS Annual Conference   Tampa Bay, Florida.

Teaching Experience:

Mathematics Faculty for Math/Problem Solving   Summer 2013
Pomona College Academy for Youth Success (PAYS). The mathematics faculty focus on developing students' problem solving skills. Students work on problem sets that require the exercise of reasoning abilities. PAYS prepares and supports high achieving high school students from neighboring schools for admission to and success in college. Students commit to three summers during their high school years. The goal of PAYS is to increase the pool of low income, first-generation students of color by preparing them to enter selective colleges and universities.

Lecturer/Assistant Lecturer   Fall 2013/Fall 2012
University of Southern California. Duties include developing syllabi, lectures, and exams, assigning homework, grading exams, holding office hours. Courses: (As Lecturer) Linear Algebra and Differential Equations, Mathematical and Computational Methods for Neuroscience; topics include material from Calculus III, Linear Algebra, ODE, Numerical Analysis, Matlab programming.

(As Assistant Lecturer) Basic Mathematical Skills (only course offered in USC math department where select graduate assistants are given the opportunity to teach); topics include arithmetic, algebra, linear, polynomial, and rational functions, graphs.

Teaching Assistant Mentor   Summer 2012
University of Southern California. Duties include meeting with, training, and mentoring incoming Teaching Assistants for the Mathematics Department. I covered chalkboard etiquette, leading the pace and direction of discussion sections, and gave other practical tips to become a great TA.

Teaching Assistant   Fall 2009 – Spring 2012
University of Southern California. Ran recitations (problem sessions) and review sessions, graded homework and exams, wrote weakly quizzes, held office hours. Courses: Calculus I, Calculus II, Linear Algebra and Differential Equations, Mathematics of Physics and Engineering (ODE, systems of linear equations, Laplace transforms), Fundamental Concepts of Analysis (undergraduate upper-division Real Analysis)

Teaching Assistant   Winter/Spring 2006
California Mathematics and Science Teacher Initiative, University of California, Santa Barbara. Interned as a teaching assistant for an Algebra II course in a local school, Dos Pueblos High School. Worked with Hispanic and other underrepresented minorities many of whom were taking the course for the second time.

Leadership/Professional Development:

Spring 2015,   Project ISLAS Fellow. CSUCI, Ca.
Spring 2015,   Spring Professional Development Workshop Series. CSUCI, Ca.
August 2014,   SACNAS Summer Leadership Institute. Stanford University, Ca.

Comittees/ Memberships:

Member, International Society of Difference Equations (ISDE).

Member, Society for Industrial and Applied Mathematics (SIAM).

Member, American Mathematical Society (AMS).

Member, Society for the Advancement of Chicanos and Native Americans
        in Science (SACNAS).

Founding Member, SACNAS Chapter at USC, Fall 2012.

Treasurer, SACNAS Chapter at USC, Fall 2012–present.

Committee Member, CSUCI University Scholarship Committee, AY 2014–2015.

Additional Information:

Computer Programming: Matlab, XPPaut, DSTool.

Software Packages: LaTeX Document Processing package.

References:

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RESEARCH
INTERESTS

Genomics, applied statistics, population pharmacokinetics theory, nonparametric estimation of mixture models, bioinformatics and software development.

EDUCATION

University of Southern California, Los Angeles, California
    Ph.D., Applied Mathematics, August, 2013
    Advisor: Professor Alan Schumitzky
    Thesis title: *Nonparametric Estimation of an Unknown Probability*
    Distribution Using Maximum Likelihood and Bayesian Approaches.

Kyiv National University, Kyiv, Ukraine
    M.Sc., Mathematics, June 2006, with honors
    B.Sc., Mathematics, June 2004, with honors

POSITIONS

2007 - 2013 Teaching Assistant, University of Southern California

2013 - August,2015 Post-doctoral Fellow, Childrens Hospital of Los Angeles, Division of Infectious Diseases

January,2015 - May,2016 Lecturer of Mathematics, University of Southern California, Department of Mathematics

AWARDS

USC Department of Mathematics The Theodore Edward Harris Teaching Prize, Spring 2011

Graduate School of USC Dissertation Completion Fellowship , Fall 2011

WiSE Fellowship to Accommodate Pregnancy, Childbirth and Adoption Program, Spring 2012

PUBLICATIONS

1. T. Tatarinova, M. Neely, J. Bartroff, M. van Guilder, W. Yamada, D. Bayard, R. Jelliffe, R. Leary, **A. Chubatiuk** and A. Schumitzky *Two General Methods for Population Pharmacokinetic Modeling: Non-Parametric Adaptive Grid and Non-Parametric Bayesian*, Journal of Pharmacokinetics and Pharmacodynamics, February, 2013.

2. T. Tatarinona, **A. Kryshchenko**, M. Triska, M. Hassan, D. Murphy, M. Neely and A. Schumitzky *NPEST: a nonparametric method and a database for Transcription Start Site prediction*, Quantitative Biology, December, 2013.

3. W. Yamada, J. Bartroff, D. Bayard, J. Burke, M. van Guilder, R. Jelliffe, R.

Leary, M. Neely, **A. Kryshchenko**, A. Schumitzky *The Nonparametric Adaptive Grid Algorithm for Population Pharmacokinetic Modeling*, www.lapk.org

4. **A. Kryshchenko**, M. van Guilder, R. Leary, M. Neely, A. Schumitzky *Nonparametric estimation of a mixing distribution for a family of linear stochastic dynamical systems*, submitted to Journal of Computational Statistics and Data Analysis, June, 2015.

TALKS AND POSTERS

1. **A. Kryshchenko** and A. Schumitzky *Nonparametric Methods for Estimating an Unknown Probability Distribution: Maximum Likelihood and Bayesisan Approaches*, 3nd Annual Southern California Women in Math Symposium, Pomona College, November 20, 2010.

2. **A. Kryshchenko** and A. Schumitzky *Nonparametric Bayesian Method of Estimating an Unknown Probability Distribution*, 4th Annual Southern California Women in Math Symposium, Loyola Marymount University, Los Angeles, January 21, 2012.

3. **A. Kryshchenko** and A. Schumitzky *Estimation of an unknown probability distribution using stick-breaking priors*, 5th Annual Southern California Women in Math Symposium, University of Southern California, Los Angeles, October 27, 2012.

4. T. Tatarinova and **A. Kryshchenko** *Nonparametric Estimation of an Unknown Probability Distribution Using Maximum Likelihood and Bayesian Approaches: Application to CNV Analysis*, 19th Annual International Conference on Intelligent Systems for Molecular Biology and 10th European Conference on Computational Biology, Austria, Vienna, July 15 - 19, 2011.

5. T. Tatarinova and **A. Kryshchenko** *Nonparametric Bayesian Method of Transcription Start Site Prediction*, 20th Annual International Conference on Intelligent Systems for Molecular Biology, Long Beach, July 15 - 17, 2012

6. T. Tatarinova and **A. Kryshchenko** *Benchmarking of Motif-Finding Algorithms*, 20th Annual International Conference on Intelligent Systems for Molecular Biology, Long Beach, July 15 - 17, 2012

7. T. Tatarinona, **A. Kryshchenko**, M. Neely and A. Schumitzky *NPEST: a nonparametric method and a database for Transcription Start Site prediction*, Women in Mathematics Symposium, 2nd Twin WiMSoCal, University of San Diego, May 4th, 2014

8. T. Tatarinona, **A. Kryshchenko**, M. Neely and A. Schumitzky *NPEST: a nonparametric method and a database for Transcription Start Site prediction*, 22th Annual International Conference on Intelligent Systems for Molecular Biology, Boston, July 11 - 15, 2014

9. David S. Bayard, **A. Kryshchenko**, Roger Jelliffe and Michael N. Neely *Multiple Model Experiment Design to Support Optimal Dosing*, American Conference on Pharmacometrics 5, Las Vegas, October 12th-15th, 2014

10. **A. Kryshchenko** *Nonparametric Maximum Likelihood Estimation of Population Distributions for Linear Stochastic Pharmacokinetic Models*, undergraduate seminar, California State University Channel Islands, October 22, 2014

11. **A. Kryshchenko**, T. Tatarinova and M. Triska *NPEST: a nonparametric method and a database for transcription start site prediction. Application to Mus musculus*, 2014 Molecular and Computational Biology Retreat, Lake Arrowhead, November 7-9, 2014

12. **A. Kryshchenko**, T. Tatarinova and M. Triska *Nonparametric Methods for Prediction and Analysis of Promoters in Model Organisms*, XXIII International Plant and Animal Genome Conference, January 10-14, 2015

TEACHING

Teaching Assistant, USC, since 08/2007– 12/2010

Courses taught include pre-calculus (Math 117), calculus (Math 118,125), and probability theory (Math 116, 218, 407). Duties include: leading discussion sections, grading assignments, writing and grading quizzes, holding office hours.

Assistant Lecturer for Basic mathematical skills (Math 040), (Spring, 2011)

Duties include: leading lectures, coordinating discussion sections, writing and grading midterms and final, holding office hours.

Lecturer for Foundations of Statistics (Math 114),(Spring, 2015), Multivariate Calculus (Math 226) and Mathematics for Social Science (Math 116), (Fall, 2015)

Duties include: leading lectures, coordinating discussion sections, writing and grading midterms and final, holding office hours.

WORKSHOPS

Spatio-Temporal Image Processing and Visual Surveillance Workshop, USC, May 2, 2008

Workshop 1: Intro to UNIX command-line, UCLA Collaboratory, Dec., 2012

Workshop 2: Introduction to Galaxy Server and Genome Browsers, UCLA Collaboratory, Jan., 2013

Python Workshop, UCLA Collaboratory, July, 2014

MEMBERSHIPS

American Mathematical Society

Mathematics Graduate Student Association, (board member, Spring 2012)

Women in Mathematics, University of Southern California

International Society for Computational Biology

International Society of Pharmacometrics

RESEARCH SUPPORT

2003/06/15-2016/08/31 R01 GM068968-13, National Institute of General Medical Sciences (NIGMS) Neely, Michael N. (PI) Population Pharmacokinetic Modeling and Dual Optimal Control Role: Co-investigator (former post-doctoral fellow)

2012/02/22-2017/01/31 R01 HD070886-05, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Neely, Michael N. (PI) Ontogeny of Voriconazole Pharmaockinetics and Metabolism Role: Co-investigator (former post-doctoral fellow)

OTHER   *Computer skills*
Programming experience: Matlab, Mathematica, R, Python, WinBUGS, C++, Pascal, SPSS;

Languages
Russian and Ukrainian (native), English (fluent).

KATHRYN LEONARD

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EDUCATION

Brown University
- Ph.D. in Mathematics, May 2004.
  Advisor: *David Mumford*
  Title: *Measuring Shape Space: ε-entropy, Adaptive Coding and 2-dimensional Shapes*
- M.Sc. in Mathematics, *Algebraic Curves and Coding Theory.*

University of New Mexico
- B.S. in Mathematics and English, summa cum laude.

EMPLOYMENT

CSU Channel Islands (CI), Mathematics,
Assistant Professor, 2006 - 2013;
Associate Professor, 2013 - present;
Director of Center for Integrative Studies, 2013 - present.
Vantoch Technology Scholar, 2016 - present
University of Toulouse, *Invited Visiting Professor*, 2016.
INRIA–Grenoble, *Invited Visiting Scholar*, 2015.
California Institute of Technology, Applied and Computational Mathematics,
von Kármán Instructor, 2004 - 2006.
Mathematical Sciences Research Institute (MSRI), *Postdoctoral Fellow*, Spring 2005.
Max Planck Institute, Leipzig, *Visiting Scholar*, 2003.
Los Alamos National Laboratory, *Research Assistant*, 1995 - 1996.

NATIONAL AWARDS

- **AWM Service Award**, Association for Women in Mathematics, 2015.
- **MAA Henry L. Alder Award for Excellence in Mathematics Teaching by an Early Career Faculty**, Mathematical Association of America, 2012.
- **CAREER Award**, National Science Foundation, 2010.
- **AAAS Science and Engineering Mass Media Fellowship**, American Association for the Advancement of Science, 2001.

MAJOR GRANTS

- **National Science Foundation (NSF) MCTP Grant**, $1.2 million, co-PI with M. Dorff (PI), J., Debnath, H. Berger, T. Jarvis, funding Center for Undergraduate Research in Mathematics, 2013-2017.
- **W.M. Keck Foundation UEP Grant**, $250,000, PI with B. Monsma, funding development of interdisciplinary undergraduate research courses, 2011-2014.
- **NSF CAREER grant**, $400,000, PI, funding research in shape analysis and modeling, 2010-2016.
- **NSF REU Site in Mathematics**, $400,000, co-PI with C. Wyels, 2010-2012.

CAMPUS AWARDS

- **Women's Leadership Award**, CI Multicultural Programs, 2013.
- **SAGE Publications Faculty Research Mentor Award**, 2010, 2011, 2013.
- **Faculty Leader of the Year Award**, Business and Technology Partnership, 2011.

SELECTED RESEARCH PUBLICATIONS (* denotes student co-author)

- K. Leonard, G. Morin, S. Hahmann, A. Carlier, *A 2D shape structure for decomposition and part similarity*, submitted.
- A. Carlier, K. Leonard, G. Morin, S. Hahmann, M. Collins, *The 2D shape structure dataset: A user annotated open access database*, to appear in Computers & Graphics.
- L. Cutler, A. Lerios, K. Leonard, G. Sarkis, et.al, *Big data techniques applied to media and computer graphics applications*, High Performance Transaction Systems, Sept. 2015.
- G. Bal*, et. al., *Skeleton-based recognition of shapes in images via longest path matching*, Research in Shape Modeling (K. Leonard and S. Tari, eds.), Springer-Verlag, May 2015.
- K. Leonard, S. Tari (ed.), Topics in Shape Analysis (book), Springer-Verlag, May 2015.
- M. Feiszli, S. Kushnarev, K. Leonard, *Metric spaces of shapes and applications: compression, curve matching and low-dimensional representation*, Geometry, Imaging, Computing, 1(2):173-221, 2014.
- K. Leonard, R. Barata*, M. Dawson*, D. Lindsay*, *Skeletal-based detection of strawberry stems*, Proc. Int. Conf. Comp. Sci. Appl., July 2013. **Best Paper Award**
- K. Leonard, D. DeSantis*, *Error correction for fire growth modeling*, Proc. Int. Ag. & Env. Inf. and Decision Sup. Sys., July 2013.
- K. Leonard, L. Contreras*, D. DeSantis*, *On the geometric deformations of functions in $L^2[D]$*, Involve, 6(3):233-241, 2012.
- K. Leonard; *Efficient representation in spaces of plane curves*. Rend. Linc. Mat. e Appl., **20**(1), 2009, 69-93.
- K. Leonard, *Efficient shape modeling: ε-entropy, adaptive coding, and Blum's medial axis versus the boundary curve*, Int. J. Comp. Vis., **74**, 2007, 183 - 199.
- K. Leonard, *An efficiency criterion for 2D shape model selection*, IEEE CVPR Proc., **1**, 2006, 1289 - 1296.

OTHER PUBLICATIONS

- T. Kwembe, K. Leonard, A. Pineda, *Academic Year Undergraduate Research: The CURM Model*, Involve, **7**(3):383-394, 2014.
- J. Balén, N. Deans, B. Gillespie, K. Leonard, N. Parmar, B. Rasnow and C.Wyels. *Developing Cultural Literacy in the STEM Disciplines*, Journal of Multiculturalism in Education, September 2012.
- K. Leonard, *Adventures in Undergraduate Research*, Notices of the AMS, December 2008.

CONFERENCE GRANTS

- **NSF**, $9,000, Workshop for Women in Shape Analysis, co-PI with E. Chambers.
- **NSF**, $49,962, Entering the Mathematical Pipeline: Opportunities for Women to Engage in Research, co-PI with A. Radunskaya, M.Lien.
- **NSF**, $50,000, Connecting Women in Mathematics, co-PI with G. Benkhart, R. Charney.

SELECTED CONFERENCES AND WORKSHOPS ORGANIZED

- **Women in Shape Modeling 2**, Nesin Math Village, Turkey, June 2016.
- **AWM Workshop at Joint Mathematics Meetings: Mathematics of Image Analysis**, Baltimore, MD, January 2014.
- **SIAM Minisymposium on Geometric Shape Analysis**, JMM 2014.
- **Women in Shape Modeling Research Collaboration Workshop**, Institute for Pure and Applied Mathematics, UCLA, July 2013.
- **CSU Research Leadership Conference**, CI, April 2010.
- **MSRI/PREP: The Mathematics of Image Analysis**, March 2005.
- **MSRI Workshop for Women: Introduction to Image Analysis**, January 2005.

SELECTED DISCIPLINARY SERVICE

- Reviewer for Journal of Mathematical Imaging and Vision, SIAM Review, IEEE Transactions in Information Theory, IEEE Transactions in Image Processing, IEEE Transactions in Pattern Analysis and Machine Intelligence, AAAS Symposia.
- Reviewer for NSF Information & Intelligent Systems Division, Computer Vision; NSF Division of Mathematical and Physical Sciences, REU.
- Council on Undergraduate Research, Facilitator, Councilor in Math/CS Division.
- Association for Women in Mathematics, Meetings Committee chair, Executive Committee member.
- Mathematical Association of America, Southern California and Nevada Section, Secretary.
- Center for Undergraduate Research in Mathematics, Co-director.

SELECTED CAMPUS SERVICE

- *Sustainability Task Force*
- *Unmanned Aerial Vehicle Task Force*
- *President's Planning and Policy Committee*
- *Student Research Steering Committee*, co-founder, co-chair
- *Research and Sponsored Programs Advisory Committee*
- *Strategic Budget Committee*
- *University Planning and Coordinating Committee*
- *Academic Resources Committee*
- *Fiscal Policies Committee*, co-chair, member

Jesse Elliott

Contact

jesse.elliott@csuci.edu
http://faculty.csuci.edu/jesse.elliott

Education

Ph.D., Mathematics, 2003	Thesis: *Witt-Burnside Rings*
University of California, Berkeley	Advisor: Hendrik W. Lenstra, Jr.
B.S., Mathematics, 1995	Honors: Phi Beta Kappa
Massachusetts Institute of Technology	GPA: 4.9/5.0

Positions

California State University, Channel Islands

Professor, Mathematics	2014–present
Associate Professor, Mathematics	2009–2014
Assistant Professor, Mathematics	2003–2009

University of California, Berkeley

Instructor	Summers 2014, 2013, 2007

University of California, Los Angeles

Lecturer	Summer 2009

Research Areas

Commutative algebra, number theory, and the philosophy of mathematics

Publications

Semistar operations on Dedekind domains, Comm. Algebra, Special Issue Dedicated to Marco Fontana, 43 (1) (2015) 236–248.

The probability that $\mathrm{Int}_n(D)$ is free, in: *Commutative Algebra: Recent Advances in Commutative Rings, Integer-Valued Polynomials, and Polynomial Functions*, Eds. Fontana, Glaz, and Frisch, Springer-Verlag, 2014.

Netwon basis relations and applications to integer-valued polynomials and q-binomial coefficients, Integers 14 (2014).

Factoring formal power series over principal ideal domains, Trans. Amer. Math. Soc. 366 (8) (2014) 3997–4019.

Presentations and module bases of integer-valued polynomial rings, J. Algebra Appl. 12 (1) (2013) 1–25.

Integer-valued polynomial rings, t-closure, and associated primes, Comm. Algebra 39 (11) (2011) 4128–4147.

Birings and plethories of integer-valued polynomials, Third International Meeting on Integer-Valued Polynomials (2010), Actes des Rencontres du CIRM 2 (2) (2010) 53–58.

Functorial properties of star operations, Comm. Algebra 38 (5) (2010) 1466–1490.

Some new approaches to integer-valued polynomial rings, in: *Commutative Algebra and its Applications: Proceedings of the Fifth International Fez Conference on Commutative Algebra and Applications*, Eds. M. Fontana, S. Kabbaj, B. Olberding, and I. Swanson, de Gruyter,
New York, 2009.

Ring structures on groups of arithmetic functions, J. Number Theory 128 (2008) 709–730.

Universal properties of integer-valued polynomial rings, J. Algebra 318 (2007) 68–92.

Binomial rings, integer-valued polynomials, and λ-rings, J. Pure Appl. Alg. 207 (2006) 165–185.

Constructing Witt-Burnside rings, Adv. Math. 203 (2006) 319–363.

Witt-Burnside Rings, Dissertation, University of California, Berkeley, 2003.

PREPRINTS

Idempotent plethories, in preparation.

Prequantales and applications to semistar operations and module systems,
http://arxiv.org/abs/1101.2462.

Lectures on Abstract Algebra (textbook), in preparation.

Introduction to the Philosophy of Mathematics (textbook), with Andreas Voellmer, in preparation.

A Dualist Resolution of $V = L$ and the Generalized Continuum Hypothesis, in preparation.

GRANTS AND AWARDS

Faculty Development Mini-Grants, CSU Channel Islands Three units of reassigned time per academic year for research	2015, 2012, 2003–09
Instructionally Related Activities Grant, CSU Channel Islands $41,480 for student and faculty travel to Australia	2014
Sabbatical Leave, CSU Channel Islands One semester paid leave to support authoring a text	Fall 2011
Instructionally Related Activities Grant, CSU Channel Islands $25,062 for student and faculty travel to Italy	2011
Instructionally Related Activities Grant, CSU Channel Islands $16,580 for student and faculty travel to the Benelux countries	2008
Nominee for Maximus Award, CSU Channel Islands	2007, 2005
Martin V. Smith Faculty Excellence and Innovation Grant, CSU Channel Islands	2004–05
Outstanding Graduate Student Instructor Award, UC Berkeley	2002
Honorable Mention, National Science Foundation Graduate Fellowship	1997
Walter S. Barr Fellowship	1996–98
Graduate Division Fellowship, UC Berkeley	1996–97

TEACHING EXPERIENCE

California State University, Channel Islands, Professor

MATH 393 Abstract Algebra	F12–13, F04–10
MATH 482 Number Theory and Cryptography	S14, S10, S06–08, S04
MATH 513 Advanced Algebra (graduate level)	F14, S13, S09, F07, F05
MATH 582 Number Theory (graduate level)	S14, S12, F06
MATH 599 Graduate Seminar	F12–13, S08
MATH 438 Philosophy of Mathematics	S14, S11, F09, S08, S05–06
MATH 590 Graduate Topics in Mathematics (Foundations)	S15
MATH 150 Calculus 1	F13, S11, F10, S10, S07, F03
PHIL 200 Introduction to Philosophy	F14
PHIL 320 Being and Knowing	S15
UNIV 392 International Experiences	S15, S11, Summer 08
UNIV 498 Faculty-Student Collaborative Research	S13, S12, S09

MATH 399 Modern Tools in Mathematics   F07–08
MATH 499 Senior Colloquium   F07–10, S06–07, F03–04
MATH 351 Real Analysis   F12
MATH 497 Directed Studies   S08, F05
MATH 240 Linear Algebra   F08
MATH 300 Discrete Mathematics   S04–05
MATH 318 Math for Secondary School Teachers   S04

University of California, Berkeley, Instructor

MATH 1A Calculus 1   Summer 2014
MATH 115 Introduction to Number Theory   Summer 2013
MATH 1B Calculus 2   Summer 2007

University of California, Los Angeles, Lecturer

MATH 33A Linear Algebra   Summer 2009

CONFERENCE TALKS

"Closure operations in commutative algebra as quantic nuclei"   8 Mar 2015
   Special Session on Closure Operations in Commutative Algebra
   2015 Spring Eastern Sectional Meeting of the AMS
   Georgetown University, Washington, DC
"A dualist perspective on the axiom of constructibility"   8 Mar 2015
   Special Session on History and Philosophy of Mathematics
   2015 Spring Eastern Sectional Meeting of the AMS
   Georgetown University, Washington, DC
"Factoring formal power series over principal ideal domains"   5 Apr 2014
   2014 Western Spring Sectional Meeting of the AMS
   University of New Mexico
"Newton interpolation, generalized binomial coefficients, and integer-valued polynomials"   20 Dec 2012
   Commutative Rings, Integer-Valued Polynomials, and Polynomial Functions
   Graz, Austria
"Witt vectors and generalizations"   15 May 2012
   Witt Vectors in Arithmetic, Geometry, and Topology
   University of New Mexico
"Factoring formal power series over principal ideal domains"   11 Mar 2012
   Fourth International Conference on Mathematical Sciences 2012
   Al Ain, United Arab Emirates
"Biring and plethory structures on integer-valued polynomial rings"   29 Nov 2010
   Third International Meeting on Integer-Valued Polynomials and Problems in
      Commutative Algebra
   Marseille, France
"Abstract ideal theory, ideal systems, and semistar operations"   20 May 2010
   Rome Commutative Ring Theory Days 2010
   Rome, Italy
"Functorial properties of star operations"   30 Oct 2009
   2009 Fall Southeastern Meeting of the AMS
   Boca Raton, FL
"Integer-valued polynomial rings and t-linked extensions"   24 Jun 2008
   2008 Fez Conference on Commutative Algebra and Applications
   Fez, Morocco
"Universal characterizations of integer-valued polynomial rings"   11 Jun 2007
   Abelian Groups and Modules over Commutative Rings
   University of Connecticut
"Universal properties of integer-valued polynomial rings"   8 May 2005
   Nebraska Commutative Algebra Conference

University of Nebraska, Lincoln

"Binomial rings"   1 Oct 2004
   International Symposium on Commutative Rings and Monoids
   Universität Graz

"Constructing Witt-Burnside rings"   15 Jan 2003
   2003 Joint Mathematics Meetings, Sessions on Number Theory
   Baltimore, MD

SEMINARS AND COLLOQUIA

"Factoring formal power series over $\mathbb{Z}$"   30 Sep 2014
   Algebra/Number Theory/Combinatorics Seminar
   Claremont Center for the Mathematical Sciences

"Factoring formal power series over $\mathbb{Z}$"   26 Sep 2014
   Mathematics Colloquium
   California State University, Chico

"Quantales and applications to ring theory"   21 Mar 2012
   Mathematics and Statistics Seminar Series
   American University of Sharjah

"Presentations and regular bases of integer-valued polynomial rings"   17 Oct 2011
   Algebra Seminar
   Université de Picardie Jules Verne

"Quantales and applications to ring theory"   2 Mar 2011
   Mathematics Colloquium
   San Francisco State University

"t-closure and integer-valued polynomial rings"   22 Oct 2010
   Algebra Seminar
   University of Utah

"Quantales and applications to ring theory"   16 Sep 2010
   Mathematics Colloquium
   New Mexico State University

"t-closure and integer-valued polynomial rings"   15 Sep 2010
   Algebra Seminar
   New Mexico State University

"Rings of integer-valued polynomials"   25 Feb 2008
   Number Theory Seminar
   University of California, Los Angeles

"A functorial approach to integer-valued polynomial rings"   13 Nov 2006
   Algebra Seminar
   University of California, Santa Barbara

"Formal Dirichlet series and zeta functions of schemes"   1 Dec 2005
   Number Theory Seminar
   University of California, Irvine

"Witt vectors, arithmetic functions, and formal Dirichlet series"   4 Nov 2005
   Number Theory Seminar
   University of California, Berkeley

"Generalized Witt vectors"   17 Oct 2003
   Arithmetic and Geometry Seminar
   University of California, Santa Barbara

"Witt-Burnside rings"   9 May 2003
   Algebra Seminar
   University of California, Santa Cruz

RESEARCH ADVISEES

California State University, Channel Islands

Casey Barker   2013–present

M.S. thesis: *On natural densities arising from integer-valued polynomial rings* (in progress)

James Chater   2012–present
    M.S. thesis on p-adic continued fractions (in progress)

John Stebbins   2011–2014
    M.S. thesis: *Generalized ellipses in $\mathbb{R}^n$ with multidimensional foci*

Benjamin Sergent and Anthony Brice   Spring 2013
    Undergraduate research on densities of sets of integers

Lucas Mattick and Blaine Kutin   Spring 2013
    Undergraduate research on integer-valued polynomials

Tammy Terzian   2010–12
    M.S. thesis: *The AKS primality test*

Angela Adams, Gregory Ball, Ryan DeMoss, and Michael Kaiser   Spring 2012
    Undergraduate research on integer-valued polynomials

James M. McDonough   2009–11
    M.S. thesis: *Integral domains arising as quotient rings of $\mathbb{Z}[[x]]$*

Margaret Freaney and Andrew Mostowa   Spring 2009
    Undergraduate research on integer-valued polynomials

PROFESSIONAL SERVICE

California State University, Channel Islands

Service to the Mathematics Department

Director of Master of Science in Mathematics Program	S12–present
Mathematics Discipline Search Committee	2013–14, 2011–12, 2004–08
Mathematics Program Personnel Committee on Retention, Tenure, and Promotion	2009–11
Developmental Mathematics Co-Coordinator	2009–present
Putnam Mathematical Competition Preparation Coach	2008–11, 2003–06
Mathematics Program Assessment Coordinator	2005–09
Mathematics Undergraduate Colloquium Organizer	F07–10, S06–07, F04
Mathematics Graduate Seminar Organizer	F12–13, S08
Coauthor of Master of Science in Mathematics	2003–05
Developmental Mathematics Coordinator	2003–05
Math Club Faculty Advisor	2003–04

Service to the University

Academic Senate	2003–present
Philosophy Program Development Team	2007–present
Coauthor of Philosophy Program	2008–present
Coauthor of Philosophy Minor	2010–14
STEM Committee	2010–present
Graduate and Post Baccalaureate Council	S12–present
Extended Education Advisory Committee (*ex officio*)	S12–present
Philosophy Coordinator	2014–present
Philosophy Club Advisor	2014–present
Senate Structure Task Force	2014–present
Professional Leaves Committee	2012–14
Chair	2013–14
Faculty Development Minigrant Reviewer	2010, 2012
Program Assessment and Review Committee	2006–11
Fiscal Policies Committee	2009–11
Faculty Development Advisory Committee	2006–08
Co-Chair	2007–08

Student Evaluations Task Force	2007–08
WASC Accreditation Committee	2004–07
Lunchtime Concert Series pianist and organizer	2012–13, 2006–07, S06
Faculty Development Director Search Committee	2006–07
Performing Arts Discipline Search Committee	2005–06
Student Academic Policies and Procedures Committee	2004–06
Co-Chair	2005–06
Liberal Studies Advisory Committee	2003–06
Assessment Plan Preparation Program	2004–05
President's Commission on Human Relations, Diversity, and Equity	2003–05
Instructionally Related Activities Committee	F04, 2003–04
Office of Research and Sponsored Programs Advisory Committee	2003–04

Communications in Algebra

Referee	May 2013–Aug 2013

Journal of the London Mathematical Society

Referee	Sep 2012–Nov 2012

International Journal of Number Theory

Referee	Sep 2011–Jan 2012
Referee	Mar 2011–Jun 2011

International Electronic Journal of Algebra

Referee	Sep–Nov 2008

American Mathematical Society

Reviewer for Mathematical Reviews	2007–11

CYNTHIA V. FLORES
Curriculum Vitae
January 8th, 2015

California State University, Channel Islands
Bell Tower East 2762
One University Drive, Camarillo, CA 93012
Web: faculty.csuci.edu/cynthia.flores

EDUCATION

Ph.D.   Department of Mathematics, University of California Santa Barbara, 2014,
Dissertation: "Properties of solutions to the IVP for the Benjamin-Ono equation in
weighted Sobolev spaces," Advisor: Gustavo Ponce

M.S.   Department of Mathematics, California State University Northridge, 2009,
Dissertation: "Manifolds with isotropic Ricci curvature," Advisor: Maria Helena Noronha

B.A.   Department of Mathematics, California State University Northridge, 2007

PUBLICATION

J. Dynam. Differential Equations, "On decay properties of solutions to the IVP of the Benjamin-
Ono equation," 2013, (DOI) **10.1007/s10884-013-9321-6.**

PROFESSIONAL APPOINTMENT

Assistant Professor   California State University, Channel Islands   2014-Present

AWARDS AND ACCOMPLISHMENTS

2014   UCSB Academic Senate Graduate Student Travel Award ($685)
2013   AMS Graduate Student Travel Award ($250)
2012   Department of Mathematics Graduate Merit Award, University of California Santa Barbara
($5,600)
2009   Department of Mathematics Merit Fellowship, Cal State University Northridge ($10,000)
2009   Association of Retired Faculty Memorial Award for Research, Cal State University
Northridge ($2,000)
2008   NSF GK-12 Fellowship, Department of Mathematics, Cal State University Northridge
($30,000)
2008   2008: Sally Casanova Pre-Doctoral Scholarship, Cal State University System ($2,000)
2007   NSF M.C.T.P Fellowship, Department of Mathematics, Cal State University Northridge
($10,000)
2006   Abel Scholarship, Department of Mathematics, Cal State University Northridge ($500)

SELECTED INVITED TALKS

2015   "Harmonic Analysis techniques and decay properties of solutions to the Benjamin-Ono
       equation" Harvey Mudd College, UG Math Colloquium, February 4, 2015
2014   "The IVP for the Benjamin-Ono equation in weighted Sobolev spaces"
       Graduate Math Seminar, CSU Channel Islands, September 2014
2014   "Defining Lebesgue spaces and applications to PDEs."
       UG Seminar, CSU Channel Islands, September 10, 2014
2014   "Math Talks: A Journey towards a Ph.D."
       LSAMP, CSU Channel Islands, February 28, 2014, PUMP, Cal Poly Pomona, July 22, 2014
2013   "On decay properties of solutions to the Benjamin-Ono equation"
       AMS Sectional Meetings, Temple University, October 12-13, 2013
2013   "The tools of Fourier Analysis"
       NSF M.C.T.P. Inspirational Talks, CSU Northridge, July 2013,
2012   "The IVP for the Benjamin-Ono equation in weighted Sobolev spaces"
       Applied Mathematics Faculty Colloquium, CSU Northridge, September 2012

CONFERENCES AND COLLOQUIA

Talks and Posters

2014   AMS Sectional Meetings Contributed Talks, Harvey Mudd College, Claremont CA
2014   AWM Workshop Poster Presentation, Joint Mathematics Meetings, Baltimore, MD*
2013   6th Annual Women in Math Symposium, University of California Riverside
2013   WimSoCal 2013, University of California San Diego
2013   Career Options for Women in Math Poster Presentation, The Institute of Mathematics and
       Applications *
2013   AWM Research Symposium, Santa Clara University*
2012   5th Annual Women in Math Symposium, University of Southern California
2010   3rd Annual Women in Math Symposium, Pomona College
2008   Association of Retired Faculty Award Ceremony, CSU Northridge
2008   The NSF GK-12 Annual Meeting Graduate Research Poster Presentation, Washington DC*
2008   FERMAT Seminar, CSU Northridge
2007   26th Annual International Mathematics Colloquium, IMPA, Brazil*
2007   P.U.M.P. Poster Presentations, CSU Northridge
2007   Pacific Coast Undergraduate Math Conference, Pepperdine University
2007   Nebraska Conference for Undergraduate Women in Math, University of Lincoln-Nebraska*

Conference Participation

2015   Joint Mathematics Meetings, San Antonio, TX
2014   SACNAS National Conference, Los Angeles, CA
2013   SIAM Annual Meeting, Student Days, San Diego CA*
2012   SACNAS National Conference, Modern Math Workshop, Seattle WA*

2011   The Joint Mathematics Meetings, New Orleans (2011)*, San Diego (2008)*
2011   Women in Mathematics Program, Institute of Pure and Applied Math, UCLA*
2007   International Research Experience for Students, Universidad de São Paulo, São Carlos, Brazil*
2007   Conference for Women in Math, Institute of Advanced Study, Princeton University*

*Indicates Travel Award Recipient

UCSB Departmental Talks

2011-2014   Math Department Graduate Student Analysis Seminar, UC Santa Barbara, On 4 Occasions
2012   California Nanosystems Institute, STEEM Talks, UC Santa Barbara
2010   Math Department Hypatian Seminar, UC Santa Barbara

TEACHING EXPERIENCE

Assistant Professor, Department of Mathematics, CSU Channel Islands 2014-Present
        Ordinary Differential Equations
        Modern Math for Elementary School Teachers II (Service Learning course)
        Capstone for Teachers
        Scientific Computing
        Partial Differential Equations
Teaching Assistant, Department of Mathematics UC Santa Barbara, 2009-2014
        Numerical Analysis
        Introduction to Proofs
        Vector Calculus, Fourier Series and PDEs
        Linear Algebra and Differential Equations
        Calculus for Life Sciences
Instructor of Record, Department of Mathematics UC Santa Barbara, Summer 2011, Present
        Mathematics for Elementary School Teachers
        Differential Calculus and Applications
Instructor of Record, California Nanosystems Institute SIMS program, UC Santa Barbara 2011-2013
        Incoming freshman transition program
        Differential Calculus and Applications
        Integral Calculus and Applications
Instructor of Record, Department of Mathematics, CSU Northridge, Fall 2008
        Mathematical Ideas for the Life Sciences
NSF GK-12 Fellow, Department of Mathematics, CSU Northridge and Sepulveda Middle School, 2007-2009
Upward Bound Mathematics Instructor, Los Angeles Valley College Student Affairs, Summer 2010

UNDERGRADUATE RESEARCH EXPERIENCES
Summer REU Mentor, CSU Channel Islands, Mathematics Department, Summer 2015
Junior Mathematician Internship, NAVAIR Ranges Department, Naval Air Systems Command, Point Mugu, CA, January 2007

ACADEMIC SERVICE AND OUTREACH

National Alliance for Doctoral Studies in the Mathematical Sciences Pre-doctoral student Mentor, 2014-Present

Math Club Co-organizer, University Preparation School 4th and 5th graders, 55 participants, Camarillo 2014-Present

Project ISLAS Fellow and Ambassador, CSU Channel Islands, 2014-Present

Project ACCESSO Instructor, CSU Channel Islands, Fall 2014

Lead TA and Orientation Workshop Leader, Department of Mathematics TA Training Institute, University of California, Santa Barbara, Fall 2013

Lead TA Instructional Development Workshop participant, Summer 2013

Founding President, University of California Santa Barbara Student Chapter of the Society of Industrial and Applied Math, 2012-Present

STEEM (incoming math transfer student program) Mentor and Tutor, Center for Science and Engineering Partnerships, and Department of Mathematics, UC Santa Barbara, 2011-Present

SIMS Graduate Workshop Leader, California Nanosystems Institute, and Department of Mathematics, UC Santa Barbara, 2011-Present

Graduate School Panel Participant, Pacific Coast Undergraduate Math Conference, 2011 and 2012

COMPUTER AND LANGUAGE SKILLS

Familiar with: MATLAB, HTML, LaTeX, Java, C, C++, Linux/Unix, Windows and Mac OS.
Native English and Native Spanish speaker (can read and write proficiently)

CURRICULUM VITAE

Name:	William C. Barber, Ph.D.
Position:	Vice President of Medical Imaging, DxRay Inc.
Address:	
Phone:	
E-mail:	

EDUCATION:

Post Doc.	University of California San Francisco, San Francisco, CA	2000-2006
Ph.D., Physics	University of California Santa Cruz, Santa Cruz, CA	1994-2000
M.S., Physics	San Francisco State University, San Francisco, CA	1992-1994
B.S. Physics	San Francisco State University, San Francisco, CA	1988-1992

PRINCIPAL POSITIONS HELD:

Development Engineer, Interon AS	Nye Vakaas Vei 56, N-1395 Hvalstad, Norway	2014-present
Physics Instructor, Department of Physics	California State University Channel Islands, Camarillo, CA	2014-present
Vice President of Medical Imaging, DxRay Inc.	19355 Business Center Dr., Suite 10 Northridge, CA 91324	2012-present
Physics Instructor, Department of Physics	Moorpark Community College, Moorpark, CA	2011-2014
Director of Research, DxRay Inc.	19355 Business Center Dr., Suite 10 Northridge, CA 91324	2010-2012
Senior Research Scientist, DxRay Inc.	19355 Business Center Dr., Suite 10 Northridge, CA 91324	2007-2010
Physics Instructor, Department of Physics	Ventura Community College, Ventura, CA	2007-present
Research Scientist, DxRay Inc.	19355 Business Center Dr., Suite 10 Northridge, CA 91324	2006-2007
Associate Specialist, Department of Radiology	University of California San Francisco, San Francisco, CA	2001-2006
Physics Instructor, Department of Physics	University of California Santa Cruz, Santa Cruz, CA	2000-2001
Teaching Assistant, Department of Astronomy	University of California Santa Cruz, Santa Cruz, CA	2000-2000
Research Assistant, Department of Physics	University of California Santa Cruz, Santa Cruz, CA	1997-2000
Teaching Assistant, Department of Physics	University of California Santa Cruz, Santa Cruz, CA	1994-1997
Lab Instructor, Department of Physics	San Francisco State University, San Francisco, CA	1992-1994
Research Assistant, Department of Physics	San Francisco State University, San Francisco, CA	1990-1994

DISSERTATION:

"Geometric boundaries in the Random Field Ising Model in Dilute Antiferromagnets"

HONORS AND AWARDS:

Graduate Assistant in Areas of National Need Fellowship (GAANN), 1996-2000

RESEARCH SUPPORT:

CURRENT PROJECTS

Grant	Title	Role	Start Date	End Date
1 R44 CA177093-01A1 NIH/NCI Phase I	Low Dose Rapid Scanning Slit Digital Mammography and Breast Tomosynthesis	Principle Investigator	06/01/2014	05/31/2015

COMPLETED PROJECTS

Grant	Title	Role	Start Date	End Date
4 R44 EB012379-02 NIH/NIBIB Phase II	Photon Counting Detector for Clinical k-edge CT	Principle Investigator	07/01/2011	06/30/2014
1 R43 EB012890-01 NIH/NIBIB Phase I	Simultaneous SPECT/CT with a single photon counting camera	Principle Investigator	07/01/2011	11/30/2012
1 R44 EB012379-01 NIH/NIBIB Phase I	Photon Counting Detector for Clinical k-edge CT	Principle Investigator	07/01/2010	06/30/2011
4 R44 EB008612-02 NIH/NIBIB Phase II	Novel Photon Counting Clinical CT Detector	Principle Investigator	10/01/2008	11/30/2011
4 R44 EB007873-02 NIH/NIBIB Phase II	A Novel In-Vivo Cell Tracking System Based on Combined XCT & FT	Principle Investigator	04/01/2008	04/30/2011
1 R44 EB008612-01 NIH/NIBIB Phase I	Novel Photon Counting Clinical CT Detector	Principle Investigator	02/01/2008	08/31/2008
1 R44 EB007873-01 NIH/NIBIB Phase I	A Novel In-Vivo Cell Tracking System Based on Combined XCT & FT	Principle Investigator	07/01/2007	03/31/2008

PENDING PROJECTS

Grant	Title	Role	Start Date	End Date
1 R44 CA189245-01 NIH/NCI Phase I	2D/3D Spectral Imaging of Tissue Specimens for Improved Margin Detection	Principle Investigator	pending	
1 U01 EB018757-01 NIH/NIBIB	Low dose spectral CT based on energy-resolved photon counting Si strip detector	Principle Investigator	pending	

TEACHING and MENTORING:

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Name	Program or School	Role	Current Position	Dates
Buxin Chen	Dept. of Radiology University of Chicago	Principle Investigator	Graduate Student, U of Chicago	2014-present
Yuting Lin	Dept. of Radiological Sciences, UC Irvine	Principle Investigator	Graduate Student, UC Irvine	2008-2010

Han Yan	Dept. of Radiological Sciences, UC Irvine	Principle Investigator	Graduate Student, UC Irvine	2007-2009
Carmen Taylor	Dept. of Bioengineering, UC Berkeley	Supervisor	Graduate Student, UC Berkeley	2005-2006
Mingsan Sun	Dept. of Bioengineering, UC Berkeley	Supervisor	Graduate Student, UC Berkeley	2003-2005
Anne Sakinawat	Dept. of Bioengineering, UC Berkeley	Supervisor	Graduate Student, UC Berkeley	2002-2003

POSTDOCTORAL FELLOWS SUPERVISED OR MENTORED

Name	Program or School	Role	Current Position	Dates
Ingrid Reiser	Dept. of Radiology, University of Chicago	Principle Investigator	Post-Doc, U of Chicago	2014-present
Hyo-Min Cho	Dept. of Radiology, UC Irvine	Collaborator	Post-Doc, UC Irvine	2013-2014
Huanjun Ding	Dept. of Radiology, UC Irvine	Collaborator	Post-Doc, UC Irvine	2012-present
Shih-Ying Huang	Dept. of Radiology, UC San Francisco	Principle Investigator	Post-Doc, UC San Francisco	2011-2012
Fares Alhassen	Dept. of Radiology, UC San Francisco	Principle Investigator	Post-Doc, UC San Francisco	2011-2012
Jochen Cammin	Div. of Medical Imaging, Johns Hopkins University	Principle Investigator	Post-Doc, Johns Hopkins	2008-2014
Philippe Deprese	Dept. of Radiology, UC San Francisco	Supervisor	Post-Doc, UC San Francisco	2004-2006
Kevin Teo	Dept. of Radiology, UC San Francisco	Supervisor	Post-Doc, UC San Francisco	2004-2005

Formal teaching in the Dept. of Physics, California State University Channel Islands:

Title	Position	Size	Units	Semester	Year
Math/Comp 510, Image Processing	Course Instructor		4	Fall	2015
Physics 100/101 Lab	Course Instructor		1	Fall	2015
Physics 464, Medical Instrumentation	Course Instructor	7	4	Spring	2015
Math/Comp 345, Image Processing	Course Instructor	34	3	Spring	2015
Physics 343, BioMedical Imaging	Course Instructor	~30	4	Fall	2014
Math/Comp 345, Image Processing	Course Instructor	~30	3	Fall	2014
Physics 464, Medical Instrumentation	Course Instructor	~20	4	Spring	2014

Formal teaching in the Dept. of Physics, Moorpark Community College:

Title	Position	Size	Units	Semester	Year
Astronomy M01, Introductory	Course Instructor	50	3	Spring	2014
Physics M20AL, Mechanics	Lab Instructor	16	1	Spring	2014
Astronomy M01, Introductory	Course Instructor	48	3	Fall	2013
Physics M20AL, Mechanics	Lab Instructor	28	1	Spring	2013
Physics M20AL, Mechanics	Lab Instructor	28	1	Fall	2012
Physics M10AL, Mechanics	Lab Instructor	30	1	Spring	2012
Physics M10A, Mechanics	Course Instructor	30	5	Spring	2011

Formal teaching in the Dept. of Physics, Ventura Community College:

Title	Position	Size	Units	Semester	Year
Astronomy V01, Introductory	Course Instructor		4	Fall	2015
Astronomy V01, Introductory	Course Instructor	40	4	Spring	2015
Astronomy V01, Introductory	Course Instructor	70	4	Fall	2014
Astronomy V01L, Introductory	Lab Instructor	30	1	Spring	2014
Physics V06, Intermediate Physics III	Lab Instructor	14	1	Spring	2013
Physics V01, Introductory Physics I	Lab Instructor	26	1	Spring	2013
Physics V01, Introductory Physics I	Lab Instructor	30	1	Fall	2012
Physics V04, Mechanics	Course Instructor	25	5	Fall	2012
Physics V01, Introductory Physics I	Lab Instructor	26	1	Spring	2012
Physics V01, Introductory Physics I	Lab Instructor	21	1	Fall	2011
Physics V01, Introductory Physics I	Lab Instructor	24	1	Spring	2011
Physics V01, Introductory Physics I	Lab Instructor	28	1	Fall	2010
Physics V01, Introductory Physics I	Lab Instructor	22	1	Spring	2010
Physics V01, Introductory Physics	Lab Instructor	26	1	Fall	2009
Physics V02, Introductory Physics II	Lab Instructor	9	1	Fall	2009
Physics V04, Mechanics	Course Instructor	20	5	Spring	2009
Physics V01, Introductory Physics I	Lab Instructor	24	1	Spring	2008
Physics V01, Introductory Physics I	Course Instructor	36	5	Fall	2007
Physics V01, Introductory Physics I	Lab Instructor	18	1	Fall	2007
Physical Science I	Lab Instructor	14	1	Spring	2007
Physics V01, Introductory Physics I	Lab Instructor	16	1	Spring	2007

Informal teaching in the Dept. of Radiology, University of California San Francisco:

Subject	Teaching Contribution	Year
Radiation Safety Training	Lecturer	2003-2006

Formal teaching in the Dept. of Physics, University of California Santa Cruz:

Title	Position	Size	Units	Qtr	Year
Physics 6B, , Introductory Physics II	Course Instructor	179	5	Spring	2001
Physics 6A, Introductory Physics I	Course Instructor	182	5	Winter	2001
Astronomy 2, Introductory Astronomy	Teaching Assistant	124	5	Fall	2000
Astronomy 2, Introductory Astronomy	Teaching Assistant	116	5	Spring	2000
Physics 134, Advanced Lab II	Lab Instructor	9	1	Winter	1997
Physics 133, Advanced Lab I	Lab Instructor	11	1	Fall	1996
Physics 101B, Modern Physics II	Lab Instructor	22	1	Winter	1996
Physics 101A, Modern Physics I	Lab Instructor	23	1	Fall	1995
Physics 6C, Introductory Physics III	Teaching Assistant	176	5	Spring	1995
Physics 6M, Introductory Lab III	Lab Instructor	20	1	Spring	1995
Physics 6M, Introductory Lab III	Lab Instructor	18	1	Spring	1995
Physics 6B, Introductory Physics II	Teaching Assistant	179	5	Winter	1995
Physics 6M, Introductory Lab II	Lab Instructor	19	1	Winter	1995
Physics 6M, Introductory Lab II	Lab Instructor	18	1	Winter	1995
Physics 6A, Introductory Physics I	Teaching Assistant	184	5	Fall	1994
Physics 6L, Introductory Lab I	Lab Instructor	20	1	Fall	1994
Physics 6L, Introductory Lab I	Lab Instructor	18	1	Fall	1994

Formal teaching in the Dept. of Physics, San Francisco State University:

Title	Position	Size	Units	Semester	Year
Physics 122, E&M	Lab Instructor	24	1	Spring	1994
Physics 112, E&M	Lab Instructor	28	1	Spring	1994
Physics 121, Mechanics	Lab Instructor	27	1	Fall	1993
Physics 111, Mechanics	Lab Instructor	32	1	Fall	1993
Physics 122, E&M	Lab Instructor	21	1	Spring	1993
Physics 112, E&M	Lab Instructor	25	1	Spring	1993
Physics 121, Mechanics	Lab Instructor	24	1	Fall	1992
Physics 111, Mechanics	Lab Instructor	32	1	Fall	1992

PRESENTATIONS:

Invited

"Optimizing sensors and ASICs for photon counting in Radiology"
Fundamentals and Application of Photon-Counting X-ray Detectors
Seoul, Korea, November 2013.

"Energy Dispersive Photon Counting Detectors for Breast Imaging"
Medical Applications of Radiation Detectors
San Diego, CA, July 2013.

"High Flux Energy-Resolved Photon-Counting X-Ray Imaging Arrays with CdTe and CdZnTe for Clinical CT"
Applications in Nuclear Instrumentation Measurement Methods and their Applications
Marseille, France, June 2013.

"Optimizing Si Detectors and ASIC Readouts for High Resolution Energy Resolved X-ray Imaging"
Medical Applications of Radiation Detectors
San Diego, CA, July 2012.

"Optimizing CdTe Detectors and ASIC Readouts for High-Flux X-ray Imaging"
Medical Applications of Radiation Detectors
San Diego, CA, July 2011.

"Photon-Counting Energy-Resolving CdTe Detectors for High Flux X-Ray Imaging"
Room Temperature Semiconductor Detectors
Knoxville, TN, November 2010.

International

"Spectral preclinical CT for functional imaging"
World Molecular Imaging Congress
Seoul, Korea, September 2014.

"Spectral X-Ray Imaging with CdZnTe Arrays"
Workshop on Room Temperature Semiconductor Detectors
Seoul, Korea, November 2013.

"Energy-Resolving Photon-Counting X-Ray Imaging Arrays for Clinical K-Edge CT"
Nuclear Science Symposium and Medical Imaging Conference
Valencia, Spain, October 2011.

"Molecular Imaging using Combined Fluorescence Tomography, Diffuse Optical Tomography, and X-Ray Computed Tomography"
World Molecular Imaging Congress
Montreal, Canada, September 2009.

"Combined Fluorescence Tomography and X-Ray Computed Tomography for Molecular Imaging"
World Molecular Imaging Congress
Nice, France, September 2008.

"High resolution position sensitive avalanche photo diode gamma-ray imaging"
Nuclear Science Symposium and Medical Imaging Conference
San Juan, Puerto Rico, October 2005.

"CdZnTe detector using programmable ASIC readout for high resolution SPECT"
Society of Nuclear Medicine Annual Meeting
Toronto, Canada, June 2005.

"Position sensitive avalanche photo diode gamma cameras for SPECT imaging"
Nuclear Science Symposium and Medical Imaging Conference
Rome, Italy, October 2004.

"The random field critical concentration in dilute antiferromagnets"
International Conference on Magnetism
Recife, Brazil, August 2000.

National

"High Flux X-Ray Imaging with CdZnTe Arrays"
Room Temperature Semiconductor Detectors
Anaheim, CA, November 2012.

"Fast photon counting CdTe detectors for diagnostic clinical CT; dynamic range, stability, and temporal response"
Physics of Medical Imaging
San Deigo, CA, February 2010.

"Large Area Photon Counting X-Ray Imaging Arrays for Clinical Dual-Energy Applications"
Nuclear Science Symposium and Medical Imaging Conference
Orlando, FL, November 2009.

"Characterization of a novel photon counting detector for clincal CT; count rate, energy resolution, and noise performance"
Physics of Medical Imaging
Orlando, FL, February 2009.

"Polycrystalline mercuric iodide photodetectors for cesium iodide scintillators"
Symposium on Radiation Measurements and Applications
Berkeley, CA, June 2008.

"Novel polycrstalline mercuric iodide phototdetectors"
Nuclear Science Symposium and Medical Imaging Conference
Honolulu, HI, November 2007.

"Guard ring elimination by surface passivation and testing for pixellated CdTe detectors"
Nuclear Science Symposium and Medical Imaging Conference
San Diego, CA, November 2006.

"Reflective gamma-ray optics for medical imaging"
Penetrating Radiation Systems and Applications VI
Denver, CO, July 2004.

"Simultaneous rest/stress myocardial perfusion SPECT with improved cross-talk rejection using a CdZnTe gamma camera"
Society of Nuclear Medicine Annual Meeting
Philadelphia, PA, June 2004.

"Simultaneous rest/stress myocardial perfusion SPECT with improved cross-talk rejection using a CdZnTe gamma camera"
Nuclear Science Symposium and Medical Imaging Conference
Portland, OR, October 2003.

"Scintillator energy and flux linearity for RbGdBr, LaCl, and LaBr"
Nuclear Science Symposium and Medical Imaging Conference
Norfolk, VA, October 2002.

"Current-mode CdZnTe for CT imaging"
Penetrating Radiation Systems and Applications IV
Seattle, WA, July 2002.

"Simultaneous CT/SPECT imaging"
Society of Nuclear Medicine Annual Meeting
Los Angeles, CA, June 2002.

"Simultaneous CT/SPECT imaging"
Symposium on Radiation Measurements and Applications
Ann Arbor, MI, May 2002.

"Monte Carlo simulation of random-field Ising behavior by modeling $Fe_{0.80}Zn_{0.20}F_2$"
44th Annual Conference on Magnetism and Magnetic Materials
San Jose, CA, November 1999.

"The specific heat and the optical birefringence of $Fe_{0.25}Zn_{0.75}F_2$"
March 1999 Meeting of the American Physical Society
Atlanta, GA, March 1999.

"Reversal of the sign of the temperature dependence of a spin-spin correlation in the magnetic percolation Ising system $Fe_{0.25}Zn_{0.75}F_2$"
March 1998 Meeting of the American Physical Society
Los Angels, CA, March 1998.

"Prototype detector for 6-keV X-rays using nine series arrays of tunnel junctions"
EUV, X-ray, and Gamma-Ray Instrumentation for Astronomy V
San Diego, CA, July 1994.

"Measurement of tunnel junction resistance during formation"
Fifth International Workshop on Low Temperature Detectors
Berkeley, CA, August 1993.

"An X-ray detector using superconducting aluminum tunnel junctions"
EUV, X-ray, and Gamma-Ray Instrumentation for Astronomy III
San Diego, CA, July 1992.

Regional

"Modern Multi Modality Medical Imaging Methodologies"
Mathematics Undergraduate Seminar CSUCI,
Camarillo, CA, November 2013.

"Mercuric iodide polycrystalline films for X-ray imaging"
John Tu and Thomas Yuen Center for Functional Onco Imaging Seminar,
Irvine, CA, June 2008.

"Position sensitive avalanche photo diode gamma cameras",
Center for Molecular and Functional Imaging,
San Francisco, CA, February 2005.

"Superconducting tunnel junction particle detectors",
University of California San Francisco Physics Research Laboratory,
South San Francisco, CA, July 2001.

PUBLICATIONS:

Invited Papers

"Energy Dispersive Photon Counting Detectors for Breast Imaging"
W.C. Barber, J.C. Wessel, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T. Gandhi, E. Nygard, and J.S. Iwanczyk,
Medical Application of Radiation Detectors, SPIE, **8853**, 885303 (2013).

"High Flux Energy-Resolved Photon-Counting X-Ray Imaging Arrays with CdTe and CdZnTe for Clinical CT"
W.C. Barber, J.C. Wessel, E. Nygard, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T. Gandhi, O. Dorholt, R. Danielsen, and J.S. Iwanczyk,
Applications in Nuclear Instrumentation Measurement Methods and their Applications, **1245**, 1 (2013).

"Optimizing Si detectors and ASIC readouts for high resolution energy resolved x-ray imaging"
W.C. Barber, E. Nygard, J.C. Wessel, N. Malakhov, N.E. Hartsough, T. Gandhi, G. Wawrzyniak, and J.S. Iwanczyk,
Medical Application of Radiation Detectors, SPIE, **8508**, 850806 (2012).

"Obtimizing CdTe detectors and ASIC readouts for high-flux x-ray imaging"
W.C. Barber, E. Nygard, J.C. Wessel, N. Malakhov, N.E. Hartsough, T. Gandhi, G. Wawrzyniak, and J.S. Iwanczyk,
Medical Application of Radiation Detectors, SPIE, **8143**, 81430J1 (2011).

"Photon-counting energy-resolving CdTe detectors for high-flux x-ray imaging"
W.C. Barber, E. Nygard, J.C. Wessel, N. Malakhov, N.E. Hartsough, T. Gandhi, G. Wawrzyniak, and J.S. Iwanczyk,
Room Temperature Semiconductor Detectors, IEEE, **R18**, 3953 (2010).

Journal Articles

"Energy dispersive CdTe and CdZnTe detectors for spectral clinical CT and NDT applications"
W.C. Barber, J.C. Wessel, E. Nygard, and J.S. Iwanczyk,
Nuclear Instruments and Methods in Physics Research A, **783**, (2015)

"Characterization of energy response for photon-counting using x-ray fluorescence"
H. Ding, H.M. Cho, W.C. Barber, J.S. Iwanczyk, S. Molloi,
Journal of Medical Physics, **41(12)**, 1902 (2014).

"Characteristic performance evaluation of a photon counting Si strip detector for low dose spectral breast CT imaging,
H.M. Cho, W.C. Barber, H. Ding, J.S. Iwanczyk, S. Molloi,
Journal of Medical Physics, **41(9)**, 1903 (2014).

"A cascaded model of spectral distortions due to spectral response effects and pulse pileup effects in a photon-counting x-ray detector for CT"
J. Cammin, J. Xu, W.C. Barber, J.S. Iwanczyk, N.E. Hartsough, and K. Taguchi,
Journal of Medical Physics, **41(4)**, 041905 (2014).

"Energy resolved X-ray grating interferometry"
T. Thuering, W.C. Barber, Y. Seo, F. Alhassen, J.S. Iwanczyk, and M. Stampanoni
Applied Physics Letters, **102**, 191113 (2013).

"A gantry-based tri-modality system for bioluminescence tomography"
H. Yan, Y. Lin, W.C. Barber, M.B. Unlu, and G. Gulsen
Review of Scientific Instruments, **83**, 043708 (2012).

"Modeling the performance of a photon counting x-ray detector for CT: energy response and pileup effects"
K. Taguchi, M. Zhang, E.C. Frey, X. Wang, J.S. Iwanczyk, E. Nygard, N.E. Hartsough, B.M.W. Tsui, and W.C. Barber
Journal of Medical Physics, **38(2)**, 1089 (2011).

"Combined Fluorescence and X-Ray Tomography for Quantitative In Vivo Detection of Fluorophore"
W.C. Barber, Y. Lin, O. Nalcioglu, J.S. Iwanczyk, N.E. Hartsough, and G. Gulsen
Technology in Cancer Research and Treatment, **9(1)**, 45 (2010).

"An analytical model of the effects of pulse pileup on the energy spectrum recorded by energy resolved photon counting x-ray detectors"
K. Taguchi, E.C. Frey, X. Wang, J.S. Iwanczyk, and W.C. Barber
Journal of Medical Physics, **37(8)**, 3957 (2010).

"Mercuric Iodide Polycrystalline Films for Cesium Iodide Scintillators"
W.C. Barber, N.E. Hartsough, and J.S. Iwanczyk
Transactions on Nuclear Science, **56(3)**, 1012 (2009).

"Photon Counting Energy Dispersive Detector Arrays for X-ray Imaging"
J.S. Iwanczyk, E. Nygard, O. Meirav, J. Arenson, W.C. Barber, N.E. Hartsough, N. Malakhov, and J.C. Wessel
Transactions on Nuclear Science, **56(3)**, 535 (2009).

"Imaging Performance of Polycrystalline Mercuric Iodide Films on CMOS Readout Arrays"
N.E. Hartsough, J.S. Iwanczyk, Einar Nygard, Nail Malakhov, W.C. Barber, and T. Gandhi
Transactions on Nuclear Science, **56**, 1810 (2009).

"A multipinhole small animal SPECT system with submillimeter spatail resolution"
T. Funk, P. Despres, W.C. Barber, K.S. Shah, and B.H. Hasegawa
Medical Physics, **33(5)**, 1259 (2006).

"Evaluation of a EMCCD Detector for Emission-Transmission Computed Tomography"
K. Teo, I.K. Shestakova, M. Sun, W.C. Barber, V.V. Nagarkar, and B.H. Hasegawa
Transactions on Nuclear Science, **53 (5)**, 2495 (2006).

"Gallstone Detection at CT in Vitro: Effect of Peak Voltage Setting"
W.C. Chan, B.N. Joe, F.V. Coakley, E.L. Prein, R.G. Gould, S. Prevrhal, W.C. Barber, K.S. Kirkwood, A. Qayyum, and B.M. Yeh
Radiology, **241(2)**, 546 (2006).

"Magnetic Vacancy Percolation in Dilute Antiferromagnets"
W.C. Barber, F. Ye, and D.P. Belanger
Physical Review B, **69**, 24409, (2004).

"Implementation and Applications of Dual-Modality Imaging"
B.H. Hasegawa, W.C. Barber, T. Funk, A.B. Hwang, A.E. Sakdinawat, C. Taylor, M. Sun, Y. Seo
Nuclear Instruments and Methods in Physics A, **525**, 236, (2004).

"Simulations of irreversibilities of the random-field Ising Model"
J. Shelton, F. Ye, W.C. Barber, L. Zhou, and D.P. Belanger
Jounal of Magnetism and Magnetic Materials, **272**, 1302 (2004).

"A single CdZnTe detector for simultaneous CT/SPECT"
W.C. Barber, K. Iwata, B.H. Hasegawa, P.R. Bennett, L.J. Cirignano, and K.S. Shah
Nuclear Instruments and Methods in Physics A, **505**, 595 (2003).

"Dual-modality imaging of cancer with SPECT/CT"
B.H. Hasegawa, K.H. Wong, K. Iwata, W.C. Barber, A.B. Hwang, A.E. Sakdinawat, M. Ramaswamy, D.C. Price, and R.A. Hawkins
Technology in Cancer Research and Treatment, **1**, 449 (2002).

"Dual-modality imaging of function and phyiology"
B.H. Hasegawa, K. Iwata, K.H. Wong, M.C. Wu, A.J. Da Silva, H.R. Tang, W.C. Barber, A.B. Hwang, A.E. Sakdinawat
Academy of Radiology, **11**, 1305 (2002).

"Monte Carlo Simulations of the Random-Field Ising Model"
W.C. Barber, D.P. Belanger
Journal of Magnetism and Magnetic Materials, **226**, 545 (2001).

"The specific heat and optical birefringence of Fe(0.25)Zn(0.75)F2"
W.C. Barber, D.P. Belanger
Physcal Review B, **61**, 8960 (2000).

"The random field critical concentration in dilute antiferromagnets"
W.C. Barber, D.P. Belanger
Journal of Applied Physics, **87**, 7049 (2000).

"Gravitational Lenses and Plastic Simulators"
R.J. Adler, W.C. Barber, M. Redar
American Journal of Physics, **63**, 536 (1995).

"Measurement of Tunnel Junction Resistance during Formation"
W.C. Barber, R.T. Johnson, K.E. Laws, J.S. Lee, R.W. Bland
Journal of Low Temperature Physics, **93**, 599 (1993).

"A prototype dark matter detector using a series array of aluminum superconducting tunnel junctions"
K.E. Laws, W.C. Barber, R.W. Bland
IEEE transactions on Applied Superconductivity, **3**, 2076 (1993).

Published Abstracts

"Spectral X-Ray Imaging with CdZnTe Arrays"
W.C. Barber, J.C. Wessel, E. Nygard, N. Malakhov, N.E. Hartsough, T. Gandhi, and J.S. Iwanczyk
Room Temperature Semiconductor Detectors, IEEE, **R06**, (2013).

"Optimization of Room-Temperature Semiconductor Detectors for Energy-Resolved X-Ray Imaging"
J.S. Iwanczyk, E. Nygard, J.C. Wessel, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T. Gandhi, and W.C. Barber
Room Temperature Semiconductor Detectors, IEEE, **R09**, (2013).

"Microcalcification and Mass Detection with a Photon-Counting Si Detector for Low Dose Breast Computed Tomography"
H. Ding, H. Cho, F. Masaki, W.C. Barber, J. Iwanczyk, S. Molloi
Spectral CT and Breast CT, AAPM, **103-4**, (2013).

"Characterization of An Energy-Resolved Photon-Counting Si Strip Detector for Breast CT Imaging"
H. Cho, H. Ding, W.C. Barber, J. Iwanczyk, S. Molloi
Spectral CT and Breast CT, AAPM, **103-5**, (2013).

"Radiation Dose Reduction with Optimal Energy Weighting for a Prototype Energy-Resolved Photon-Counting Si Strip Detector"
A. Lam Ng, H. Ding, H. Cho, W.C. Barber, J. Iwanczyk, S. Molloi
Spectral CT and Breast CT, AAPM, **103-6**, (2013).

"System Optimization of Spectral Breast CT Based On An Energy-Resolved Photon-Counting Si Strip Detector: A Simulation Study"
H. Cho, H. Ding, F. Masaki, W.C. Barber, J. Iwanczyk, S. Molloi
Spectral CT and Breast CT, AAPM, **103-8**, (2013).

"High Flux X-Ray Imaging with CdZnTe Arrays"
W.C. Barber, J.C. Wessel, E. Nygard, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T. Gandhi, and J.S. Iwanczyk
Nuclear Science Symposium, IEEE, **JMR4**, (2012).

"Molecular Imaging using Combined Fluorescence Tomography, Diffuse Optical Tomography, and X-Ray Computed Tomography"
W.C. Barber, Y. Lin, G. Gulsen, J.S. Iwanczyk, E. Nygard, N.E. Hartsough, N. Malakov, O. Nalcioglu, and G. Gulsen
World Molecular Imaging Conference, SMI, **1035**, (2009).

"A hybrid fluorescence tomography and X-ray CT system for small animal molecular imaging"
Y. Lin, W.C. Barber, H. Yan, J.S. Iwanczyk, E. Nygard, N. Malakhov, N.E. Hartsough, T. Gandhi, W.W. Roeck, O. Nalcioglu, and G. Gulsen
Biomedical Optics, Photonics West, SPIE, **BO115**, 30 (2009).

"Combined Fluorescence Tomography and X-Ray Computed Tomography for Molecular Imaging"
W.C. Barber, G. Gulsen, N.E. Hartsough, N. Malakov, W.W. Roeck, T. Gandhi, M.B. Unlu, E. Nygard, J.S. Iwanczyk, and O. Nalcioglu
World Molecular Imaging Conference, SMI, **0359**, (2008).

"High Count-Rate CdTe and CZT Detector Structures for X-Ray Imaging"
J.S. Iwanczyk, W.C. Barber, N.E. Hartsough, N. Malakhov, E. Nygard, and J.C. Wessel
Room Temperature Semiconductor Detectors, IEEE, **1**, (2008).

"Carbon-Fiber Heating Systems for Maintaining Core Body Temperature of Anesthetized Small Animals during MicroSPECT/CT imaging"
C. Taylor, W.C. Barber, V. Zhang, M. Sun, A. Welm, I. Saeed, D. Soto, K. Iwata, B.E. Patt, and

B.H. Hasegawa
Journal of Nuclear Medicine, **47**, 402 (2006).

"CdZnTe Detector using Programmable ASIC Readout for High Resolution SPECT"
W.C. Barber, H. Kim, L.J. Cirignano, T. Funk, K.S. Shah, and B.H. Hasegawa
Journal of Nuclear Medicine, **46**, 495 (2005).

"Fundamental Imaging Properties of a Scintillation Camera Based on Position Sensitive Avalanche Photodiodes"
P. Despres, W.C. Barber, T. Funk, M. McClish, P. Dokhale, K.S. Shah, and B.H. Hasegawa
Journal of Nuclear Medicine, **46**, 172 (2005).

"A Position Sensitive Avalanche Photodiode for Small Animal SPECT"
T. Funk, W.C. Barber, K.S.Shah, M. McClish, and B.H. Hasegawa
Academy of Molecular Imaging, **192**, (2005).

"Simultaneous dual-isotope myocardial perfusion SPECT with improved crosstalk correction using a CdZnTe gamma camera"
W.C. Barber, K.S. Shah, and B.H. Hasegawa
Journal of Nuclear Medicine, **45**, 430 (2004).

"Simultaneous CT/SPECT with a single CdZnTe detector"
W.C. Barber, K. Iwata, B.H. Hasegawa, P.R. Bennett, L.J. Cirignano, and K.S. Shah
Journal of Nuclear Medicine, **43**, 59 (2002).

"Design of Gamma-Ray Optics for Small Animal Imaging"
M.J. Pivovaroff, W.W. Craig K. Ziock, W.C. Barber, K. Iwata, and B.H. Hasegawa
Journal of Nuclear Medicine, **43**, 231 (2002).

Conference Proceedings

"Modeling photon-counting detectors for x-ray CT: spectral response and pulse-pileup effects and evaluation using real data"
J. Cammin, J. Xu, W.C. Barber, J.S. Iwanczyk, N.E. Hartsough, and K. Taguchi
Medical Imaging,, Physics of Medical Imaging, SPIE, **8668**, 8668OR (2013).

"Pulse pileup statistics for energy sensitive photon counting detectors with pulse height analysis"
K. Taguchi, S. Srivastava, Q. Tang, B.S. Caffo, J.S. Iwanczyk, N.E. Hartsough, W.C. Barber, and J. Cammin
Medical Imaging,, Physics of Medical Imaging, SPIE, **8313**, 8313OZ (2012).

"Energy-Resolved Photon-Counting X-Ray Imaging Arrays for Clinical K-Edge CT"
W.C. Barber, E. Nygard, J.C. Wessel, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T. Gandhi, and J.S. Iwanczyk,
Nuclear Science Symposium, IEEE, **M23**, 4441 (2011).

"Optimization of Room-Temperature Semiconductor Detectors for Energy-Resolved X-Ray Imaging"
J.S. Iwanczyk, E. Nygard, J.C. Wessel, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T. Gandhi, and W.C. Barber
Room Temperature Semiconductor Detectors, IEEE, **R09**, 4745 (2011).

"Bioluminescence tomography with a combined BLT/DOT/CT system"
H. Yan, Y. Lin, W.C. Barber, O. Nalcioglu, and G. Gulsen
Photonics West, Multi-modal Biomedical Imaging, SPIE, , accepted (2011).

"A tabletop clinical x-ray CT scanner with energy-resolving photon counting detector"
J. Cammin, S. Srivastava, W.C. Barber, J.S. Iwanczyk, N.E. Hartsough, E. Nygard, J.C. Wessel,
N. Malakhov, and K. Taguchi
Medical Imaging, Physics of Medical Imaging, SPIE, **7961**, 79611S (2011).

"Fast photon counting CdTe detectors for diagnostic clinical CT: dynamic range, stability, and
temporal response"
W.C. Barber, E. Nygard, J.C. Wessel, N. Malakhov, G. Wawrzyniak, N.E. Hartsough, T.
Gandhi, and J.S. Iwanczyk
Medical Imaging, Physics of Medical Imaging, SPIE, **7622**, 76221E (2010).

"An analytical model of the effects of pulse pileup on the energy spectrum recorded by energy
resolved photon counting x-ray detectors"
K. Taguchi, E.C. Frey, X. Wang, J.S. Iwanczyk, and W.C. Barber
Medical Physics, Physics of Medical Imaging, SPIE, **7622**, 76221C (2010).

"Large Area Photon Counting X-Ray Imaging Arrays for Clinical Dual-Energy Applications"
W.C. Barber, E. Nygard, J.S. Iwanczyk, T.J. Beck, J.C. Wessel, N. Malakhov, iG. Wawrzyniak,
N.E. Hartsough, T. Gandhi, and K. Taguchi,
Nuclear Science Symposium, IEEE, **M8**, 3029 (2009).

"Characterization of a novel photon counting detector for clinical CT: count rate, energy
resolution, and noise performance"
W.C. Barber, E. Nygard, J.S. Iwanczyk, M. Zhang, E. Frey, B. Tsui, J.C. Wessel, N. Malakhov,
G. Wawrzyniak, N.E. Hartsough, T. Gandhi, and K. Taguchi
Medical Imaging, Physics of Medical Imaging, SPIE, **7258**, 241 (2009).

"Enabling Photon Counting Clinical X-Ray CT"
K. Taguchi, S. Srivastava, H. Kudo, and W.C. Barber,
Nuclear Science Symposium, IEEE, **M13**, 3581 (2009).

"Dual-modality molecular imaging for small animals using fluorescence and x-ray computed
tomography"
Y. Lin, W.C. Barber, J.S. Iwanczyk, E. Nygard, N. Malakhov, N.E. Hartsough, T. Gandhi, W.W.
Roeck, O. Nalcioglu, and G. Gulsen
Molecular Imaging II, Biomedical Optics and Imaging, SPIE, **7370**, 16 (2009).

"Imaging Performance of Polycrystalline Mercuric Iodide Films on CMOS Readout Arrays"
N.E. Hartsough, J.S. Iwanczyk, Einar Nygard, Nail Malakhov, W.C. Barber, and T. Gandhi
Room Temperature Semiconductor Detectors, IEEE, **1**, 370 (2008).

"Polycrystalline Mercuric Iodide Photodetectors Coupled to Scintillators"
W.C. Barber, N.E. Hartsough, M.Q. Damron, and J.S. Iwanczyk
Nuclear Science Symposium, IEEE, **1**, 78 (2007).

"Polycrystalline Mercuric Iodide Films for Novel Detector Applications"
N.E. Hartsough, J.S. Iwanczyk, W.C. Barber, M. Namkung, and J.I. Trombka
Nuclear Science Symposium, IEEE, **2**, 1541 (2007).

"Photon Counting Energy Dispersive Detector Arrays for X-ray Imaging"
J.S. Iwanczyk, E. Nygard, O. Meirav, J. Arenson, W.C. Barber, N.E. Hartsough, N. Malakhov, and J.C. Wessel
Nuclear Science Symposium, IEEE, **4**, 2741 (2007).

"Guard Ring Elimination in CdTe and CdZnTe Detectors"
W.C. Barber, A. Arodzero, N. Malakhov, M.Q. Damron, N.E. Hartsough, D. Moraes, P. Jarron, P. Weilhammer, E. Nygard, J.S. Iwanczyk
Nuclear Science Symposium, IEEE, **4**, 2414 (2006).

"A System for the Characterization and Testing of CdZnTe/CdTe Pixel Detectors for X-ray and Gamma-ray Imaging"
A. Arodzero, W.C. Barber, M.Q. Damron, N.E. Hartsough, J.S. Iwanczyk, N. Malakhov, E. Nygard, D. Moraes, P. Weilhammer, P. Jarron
Nuclear Science Symposium, IEEE, **6**, 3638 (2006).

"Comparison of Position-Sensitive versus Normal Avalanche Photodiodes in a Continuous Crystal Gamma Camera"
P. Despres, T. Funk, W.C. Barber, K.S. Shah, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **3**, 1829 (2006).

"Reducing the distortion in two-dimensional resistive layer positioning devices: a simulation study"
P. Despres, T. Funk, W.C. Barber, K.S. Shah, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **2**, 1091 (2006).

"High Resolution Position Sensitive Avalanche Photo Diode Gamma Ray Imaging"
W.C. Barber, P. Despres, T. Funk, M. Miclish, K.S. Shah, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **6**, 2372 (2005).

"Investigation of a Continuous Crystal PSAPD-Based Gamma Camera"
P. Despres, W.C. Barber, M. Miclish, T. Funk, K.S. Shah, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **6**, 2780 (2005).

"Pincushion Distortion in Position Sensitive Avalanche Photodiodes"
P. Despres, W.C. Barber, M. Miclish, K.S. Shah, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **6**, 2031 (2005).

"A High Efficiency Small Animal Imaging System Based on Position Sensitive Avalanche Photodoides"
T. Funk, P. Despres, W.C. Barber, K.S.Shah, and B.H. Hasegawa
Penetrating Radiation Systems and Applications VII, SPIE, **5923**, 59230D (2005).

"Progress of focasing x-ray and gamma-ray optics for small animal imaging"
M.J. Pivovaroff, T. Funk, W.C. Barber, B.D. Ramsey, and B.H. Hasegawa
Penetrating Radiation Systems and Applications VII, SPIE, **5923**, 59230B (2005).

"Evaluation of an EMCCD Detector for Emission Transmission Computed Tomography"
K. Teo, I.K. Shestakova, M. Sun, W.C. Barber, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **6**, 3050 (2005).

"Near Simultaneous Combined SPECT/CT Imaging Using EMCCD"
V.V. Nagarkar, I.K. Shestakova, B. Singh, V. Gaysinskiy, K. Teo, M. Sun, W.C. Barber, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **6**, 2607 (2005).

"PSAPD Gamma Camera for SPECT"
W.C. Barber, T. Funk, M. Miclish, K.S. Shah, and B.H. Hasegawa
Nuclear Science Symposium, IEEE, **5**, 2815 (2004).

"CCD-Based Detector for SPECT"
V.V. Nagarkar, I.K. Shestakova, V. Gaysinskiy, S.V. Tipnis, B. Singh, W.C. Barber, B.H. Hasegawa, and G. Entine
Nuclear Science Symposium, IEEE, **4**, 2449 (2004).

"Simultaneous dual-isotope SPECT with a single CdZNTe detector"
W.C. Barber, B.H. Hasegawa, and K.S. Shah
Nuclear Science Symposium, IEEE, **3**, 2143 (2003).

"Small animal radionuclide imaging with focusing gamma-ray optics"
M.J. Pivovaroff, W.C. Barber, F.E. Christensen, W.W. Craig, T. Decker, M. Epstein, T. Funk, C.J. Hailey, B.H. Hasegawa, R. Hill, J.C. Jernigan, C. Taylor, and K.P. Ziock
Penetrating Radiation Systems and Applications V, SPIE, **5199**, 147 (2003).

"Current mode operation of a CdZnTe for CT imaging"
W.C. Barber, K. Iwata, B.H. Hasegawa, P.R. Bennett, L.J. Cirignano, and K.S. Shah
Penetrating Radiation Systems and Applications IV, SPIE, **4786**, 144, (2002).

"Scintillator Energy and Flux Linearity for RbGdBr:Ce, LaCl:Ce, LaBr:Ce"
W.C. Barber, B.H. Hasegawa, and K.S. Shah
Nuclear Science Symposium, IEEE, **2**, 936 (2002).

"Applications for penetrating radiation for small animal imaging"
B.H. Hasegawa, M.C. Wu, K. Iwata, A.B. Hwang, K.H. Wong, W.C. Barber, M.W. Dae, A.E. Sakdinawat
Penetrating Radiation Systems and Applications IV, SPIE, **4786**, 80, (2002).

"Dual-modality imaging of function and phyiology"
B.H. Hasegawa, K. Iwata, K.H. Wong, M.C. Wu, A.J. Da Silva, H.R. Tang, W.C. Barber, A.B. Hwang, A.E. Sakdinawat
Medical Imaging, SPIE, **4683**, 1 (2002).

"Prototype detector for 6-keV X-rays using nine series arrays of tunnel junctions"
W.C. Barber, R.W. Bland, R.T. Johnson, K.E. Laws, J.S. Lee
EUV, X-Ray, and Gamma-Ray Instrumentation for Astronomy V, SPIE, **2280**, 344 (1994).

"An X-ray detector using superconducting aluminum tunnel junctions"
W.C. Barber, R.W. Bland, J.W. Carpenter, R.T. Johnson, K.E. Laws, J. Lockhart, J.S. Lee, R.M. Watson
EUV, X-Ray, and Gamma-Ray Instrumentation for Astronomy III, SPIE, **1743**, 339 (1992).

Book Chapters

"Pixellated Semiconductor and Parallel ASIC Design for Spectral Radiology"
W.C. Barber, E. Nygard, and J.S. Iwanczyk
Radiation Detectors for Medical Imaging, Taylor & Francis, in press, (2015)

"Photon-Counting Energy-Dispersive Detector Arrays for X-Ray Imaging"
J.S. Iwanczyk, W.C. Barber, E. Nygard, N. Malakhov, N.E. Hartsough, and J.C. Wessel
Electronics for Radiation Detection, CRC press, Editor K. Iniewski, **Ch 3**, 51 (2010).

"High Resolution Radionuclide Imaging Using Focusing Gamma-Ray Optics"
M.J. Pivovaroff, W.C. Barber, T. Funk, B.H. Hasegawa, C. Taylor, W.W. Craig, and K.P. Ziock
Small Animal SPECT imaging, Springer US, Editors M.A. Kupinski and H.H. Barrett, **Ch 22**, 267 (2004).

Technical Reports

"Gamma-Ray Focusing Optics for Small Animal Imaging"
M.J. Pivovaroff, W.C. Barber, W.W. Craig, B.H. Hasegawa, B.D. Ramsey, and C. Taylor
NASA TECHNICAL REPORTS, **16**, 1576 (2004).

PROFESSIONAL ACTIVITIES:

Memberships

Member, Institute of Electric and Electronic Engineers, (2009-present).
Member, Society for Photo-Optical Instrumentation Engineers, (2009-present).
Member, Society of Molecular Imaging, (2008-2009).
Member, Neutron Scattering Society of America, (1998-present).
Member, American Physical Society, (1996-2000).

Service to Government Organizations

Reviewer for NIH NIBIB study section ZEB1 OSRD-M 1S, (2013).
Reviewer for NIH NIBIB study section ZEB1 OSRD-J 2S, (2013).
Reviewer for NIH NIBIB study section ZRG1 IMST-W 53B, (2009).

Service to Professional Organizations

Reviewer for the Journal of Medical Physics, (2009-present).
Reviewer for the Transaction on Nuclear Science Journal, (2008-present).
Reviewer for the Nuclear Science Symposium Medical Imaging Conference, (2007-present).
Reviewer for the International Conference on Magnetism, (1998-2000).
Reviewer for the Journal of Magnetism and Magnetic Materials, (1996-1999).

<u>Scientific Meetings Attended</u>

International Meetings

World Molecular Imaging Congress, Seoul, Korea, (2013).
Nuclear Science Symposium and Medical Imaging Conference, Seoul, Korea, (2013).
Advancements in Nuclear Instrumentation Measurement Methods, Marseille, France, (2013).
European Congress of Radiology Annual Meeting, Vienna, Austria, (2013).
Nuclear Science Symposium and Medical Imaging Conference, Valencia, Spain, (2011).
World Molecular Imaging Congress, Montreal, Canada, (2009).
World Molecular Imaging Congress, Nice, France, (2008).
Nuclear Science Symposium and Medical Imaging Conference, Fajardo, Puerto Rico, (2005).
52nd Annual Meeting of Society of Nuclear Medicine, Toronto, Canada, (2005).
Nuclear Science Symposium and Medical Imaging Conference, Rome, Italy, (2004).
International Conference on Magnetism, Recife, Brazil, (2000).
Ising Centennial Conference, Belo Horizonte, Brazil, (2000).

National Meetings

Society for Photo-Optical Engineering, Optics and Photonics, San Diego, CA (2014).
Society for Photo-Optical Engineering, Optics and Photonics, San Diego, CA (2013).
Society for Photo-Optical Engineering, Physics of Medical Imaging, Orlando, FL (2013).
Nuclear Science Symposium and Medical Imaging Conference, Anaheim, CA (2012).
Society for Photo-Optical Engineering, Optics and Photonics, San Diego, CA (2012).
Society for Photo-Optical Engineering, Physics of Medical Imaging, San Diego, CA (2012).
Society for Photo-Optical Engineering, Optics and Photonics, San Diego, CA (2011).
Society for Photo-Optical Engineering, Physics of Medical Imaging, Orlando, FL (2011).
Nuclear Science Symposium and Medical Imaging Conference, Knoxville, TN (2010).
Society for Photo-Optical Engineering, Physics of Medical Imaging, San Diego, CA (2010).
Nuclear Science Symposium and Medical Imaging Conference, Orlando, FL (2009).
Society for Photo-Optical Engineering, Physics of Medical Imaging, Orlando, FL (2009).
12th Symposium on Radiation Measurements and Applications, Berkeley, CA (2008).
Nuclear Science Symposium and Medical Imaging Conference, Honolulu, HI (2007).
Nuclear Science Symposium and Medical Imaging Conference, San Diego, CA (2006).
51st Annual Meeting of Society of Nuclear Medicine, Philadelphia, PA (2004).
49th Annual Meeting of the Society for Optical Engineering, Denver, CO (2004).
Nuclear Science Symposium and Medical Imaging Conference, Portland, OR (2003).
47th Annual Meeting of the Society for Optical Engineering, Seattle, WA (2002).
Nuclear Science Symposium and Medical Imaging Conference, Norfolk, VA (2002).
49th Annual Meeting of Society of Nuclear Medicine, Los Angeles, CA (2002).
10th Symposium on Radiation Measurements and Applications, Ann Arbor, MI (2002).
Nuclear Science Symposium and Medical Imaging Conference, San Diego, CA (2001).
Annual Meeting of the American Physical Society, Atlanta, GA (1999).
44th Annual Conference on Magnetism and Magnetic Materials, San Jose, CA (1999).
Annual Meeting of the American Physical Society, Los Angeles, CA (1998).
EUV, X-ray, and Gamma-Ray Instrumentation for Astronomy V, San Diego, CA (1994).
EUV, X-ray, and Gamma-Ray Instrumentation for Astronomy IV, San Diego, CA (1993).
5th International Workshop on Low Temperature Detectors, Berkeley, CA (1993).
EUV, X-ray, and Gamma-Ray Instrumentation for Astronomy III, San Diego, CA (1992)

PROFESSIONAL SERVICE:

Radiation Monitoring Devices Inc., Watertown, MA	Medical Imaging	Experimental Collaborator	2001-2006
Varian Inc., Mountain View, CA	CdZnTe Detectors	Experimental Collaborator	2004-2005
Oak Ridge National Lab, Oak Ridge, TN	Neutron Scattering	Experimental Collaborator	1996-2000

UNIVERSITY SERVICE:

Lawrence Livermore National Lab, Livermore, CA	Gamma Detectors	Experimental Collaborator	1992-1994

Departmental Service

Department of Radiology, Physics Research Lab, UC San Francisco	Manager of Radiation Safety	2004-2006
Center for Molecular and Functional Imaging, UC San Francisco	Laboratory Safety Warden	2003-2006
Department of Radiology, Physics Research Lab, UC San Francisco	Associate Specialist Search Committee	2002-2004

Susan J. Martinez

Education

- **M.S., Mathematics,** California State University at Channel Islands, Camarillo, CA, 2011
  THESIS: The Influence of Manipulatives on Students' Understanding of Advanced Algebra Concepts
- Vanguard University of Southern California, Costa Mesa, CA, 2007 (Early Childhood Development)
- SAS Training, Irvine, CA, 2002
- Learning Tree University, Thousand Oaks, CA, 1998 (Windows Programming and Visual Basic)
- **B.S., Statistics,** University of California, Santa Barbara, Santa Barbara, CA, 1996
- Bakersfield College, Bakersfield, CA, 1992 (Calculus)
- **A.A., General Education,** Cerro Coso Community College, Ridgecrest, CA, 1992
- Northwestern State University Louisiana, Natchitoches, LA, 1989 (General Ed)
- College of the Canyons, Santa Clarita, CA, 1988 (General Ed, Dance)

College Courses Taught

- Calculus I (for Engineer Majors)
- Calculus I (for Business Majors)
- Modern Mathematics for Elementary Teachers
- Intermediate Algebra
- Advanced Image Analysis Techniques (graduate-level Physics course) (Graded homework, presentations, and reports and led class when the professor could not be there)

Workshops Taught

- Success in Teaching
- Math Anxiety
- Test Anxiety
- Discover Your Learning Style
- Test-Taking Strategies

Math-Related Staff Experience

Assistant Director, Learning Resource Center, California State University at Channel Islands, Camarillo, CA, 2013 to Present

Co-Partner, Inspired Minds Academy, LLC, Thousand Oaks, CA, 2013 to Present
- Organize and Co-Lead Math Clubs at Participating Elementary Schools
- Organize and Co-Lead Math Summer Camps at CSUCI

Teaching Experience

Lecturer, California State University at Channel Islands, Camarillo, CA, 2013 to Present
- Modern Mathematics for Elementary Teachers: Taught two sections Spring 2013

Adjunct Faculty, California Lutheran University, Thousand Oaks, CA, 2012 to 2013
- Intermediate Algebra: Taught four sections in 2012-2013

Adjunct Faculty, Loyola Marymount University, Los Angeles, CA, 2011 to 2013
- Calculus I (for Business Majors): Taught four sections in 2012-2013
- Calculus I (for Engineers): Taught four sections in 2011-2012

Teaching Associate, California State University at Channel Islands, Camarillo, CA, 2009 to 2011
- Modern Mathematics for Elementary Teachers: Taught one section
- Advanced Image Analysis Techniques (graduate-level course): Assisted Physics professor as a TA
- Intermediate Algebra: Taught three sections and in charge of coordinating final for Fall 2009.

Teaching Assistant, California State University at Channel Islands, Camarillo, CA, 2009
- For Business Calculus, assisted professor by grading homework, prepared for and lectured at lab and review sessions

Personal Tutor, Thousand Oaks, CA, 2005 to Present
- Tutor children and adults in math and other subjects

Toddler Teacher and Childcare Supervisor, Bethany Christian School, Thousand Oaks, CA, 2007 to 2009
- Created lesson plans, taught, and managed the classroom
- Organized childcare for twenty-two children and supervised childcare workers

Teacher Assistant, Christian Preschool, Thousand Oaks, CA, 2007 to 2008
- Managed two classes simultaneously by preparing and assisting with craft, preparing snack, cleaning, and teaching when needed

Actuarial Experience

Actuarial Analyst III, WellPoint Health Networks, Woodland Hills, CA, 1996 to 2003
- Assisted the Pharmacy Department manage drug costs by creating monthly drug portfolio reports and pharmacy trend analysis reports
- Helped WellPoint manage costs by producing high hospital readmission rates reports; targeted physicians with high rates; produced 100 most common diagnoses that result in readmissions report
- Maintained reasonableness and reconciliation of all data; merged inherited business with existing data for uniformity and accuracy
- Created executive summary template used by entire department to inform other departments of our completed projects; supervised the collection of and proof-read these summaries each month

- Calculated custom savings analysis for non-strategic states and produced standard discount reports by state, by region, and by networks before company reorganization
- Individual/Small Group (ISG): Created competitive studies and refined/documented pricing models
- Senior: Created medical competitive studies; simplified the Senior pricing model and supported rate changes with corresponding memoranda and exhibits; formulated fraud research reports
- Standard Business: Developed, tested, and documented Autoquote (PPO/HMO, dental, life, and rider pricing model), produced medical and dental competitive studies, and summarized claims and enrollment data for analysis; created IBNR reports on a monthly basis.
- Worked with Excel, Access, Word, SAS, Cognos PowerPlay, Mainframe (EXTRA!), PowerPoint, APL

Actuarial Intern, Transamerica Life Companies, Los Angeles, CA, 1995
- IBNR report: Evaluated new data, created instructions for future interns, searched for discrepancies in reserves; worked with Excel, Word, DOS

PRESENTATIONS

- Martinez, Susan J. (2014), **Short Oral**: "Hand-On Inequalities". Presented (July) at the Psychology of Mathematics Education (PME) Math Conference, Vancouver, Canada.
- Martinez, Susan J. (2013), **Workshop**: "Advanced Algebra Manipulatives". Presented (November) at the California Mathematics Council (CMC) Math Conference, Palm Springs, California.
- Martinez, Susan J. (2011), **Workshop**: "The Influence of Manipulatives on Students' Understanding of Advanced Algebra Concepts". Presented (June) at the Hawaii University International Conferences on Mathematics and Engineering conference, Honolulu, Hawaii.
- Martinez, Susan J. (2011), **Poster**: "The Influence of Manipulatives on Students' Understanding of Advanced Algebra Concepts". Presented (May) at the SAGE Research Competition, California State University at Channel Islands, Camarillo, CA.
- Martinez, Susan J. (2011), **Presentation**: "The Influence of Manipulatives on Students' Understanding of Advanced Algebra Concepts". Presented (April) at the Graduate Seminar class, California State University at Channel Islands, Camarillo, CA.
- Martinez, Susan J. (2011), **Poster**: "The Influence of Manipulatives on Students' Understanding of Advanced Algebra Concepts". Presented (April) at the Mathematical Association of America (MAA) Spring 2011 conference, Point Loma Nazarene University, San Diego, CA.

COMPETENCIES

- Able to create a learning environment that is positive, fun, and challenging when teaching or tutoring
- Thrive while working independently and in a team environment
- Eager to continue my education to improve my skills
- Problem solver proficient in analytical/organizational skills
- Successful at managing multiple priorities and assignments
- Passed **Actuarial Exam 100** (Calculus)

Academic Honors and Awards

- Outstanding Research in Mathematics at 2011 SAGE Faculty Student Research Forum
- President's List, 3 terms, Cerro Coso Community College, 1990 to 1992
- Special Honors Award for maintaining 3.75 GPA, Cerro Community College, 1992
- Bill Whitworth Memorial Scholarship, Cerro Coso Community College, 1991 – 1992
- H.P. Leet Memorial Scholarship, Cerro Coso Community College, 1992 - 1992
- Certificate of Achievement for outstanding performance, Cerro Coso Community College, 1992

Voluntary Work

- Volunteer to teach math at Bethany Christian School
- Helped at University Preparation School and University Charter Middle School at CSUCI in the math club for ages Kindergarten through 7th grade, Camarillo, CA, 2008
- Stephen Minister, 2001 - 2002
- Filled various needs in the church/shelters throughout the years

Special Interests

- Reading
- Walking/Running/Going to the Gym
- Cooking
- Dancing
- Playing the Piano
- Singing
- Playing Scrabble

Christina Lynn Soderlund
christina.soderlund@csuci.edu

Education

- Ph.D., Mathematics, University of California, Los Angeles (UCLA), November 2004
- M.A., Mathematics, University of California, Los Angeles (UCLA), June 2001
- B.S., Mathematics, University of California, Davis, June 1999

Research Interests

- Primary Interest: Nielsen Fixed Point Theory
- Dissertation (2004): Characterizing Fixed Point Sets of Maps Homotopic to a Given Map
- Thesis Advisor: Robert Brown (UCLA)

Teaching and Related Experience

- Adjunct Professor, Department of Mathematics, California State University Channel Islands, August 2013 to present
  - Courses:
    - Math/Psyc 202: Biostatistics (Fall 2013, Spring 2014, Fall 2014, Spring 2015)

- Adjunct Professor, Department of Mathematics, California Lutheran University (CLU), January 2010 to May 2013
  - Courses:
    - Honors 102: At Home in the Universe (Spring 2013, 2012)
    - Math 151: PreCalculus (Spring 2013)
    - Math 475: Senior Capstone Advisor (Fall 2010)
    - Math 381: Euclidean and Non-Euclidean Geometry (Spring 2010)

- Substitute Professor, Department of Mathematics, California State University Channel Islands, February to April 2011
  - Courses:
    - Math 108: Introduction to Mathematical Thinking
    - Math 318: Mathematics for Secondary School Teachers
      - *Specifically taught the unit on Abstract Algebra*

- Assistant Professor, Department of Mathematics, CLU, August 2005 to August 2009
  - Courses:
    - Math 110: Intermediate Algebra (Fall 2005)
    - Math 151: PreCalculus (Spring 2007, 2008)
    - Math 251: Calculus I (Fall 2005, Spring 2006, Fall 2006, Fall 2007, Fall 2008)
    - Math 252: Calculus II (Spring 2007, Fall 2007)
    - Math 282: Intro to Proof (Fall 2008)
    - Math 381: Euclidean and NonEuclidean Geometry (Spring 2006, 2008)
    - Math 420: Real Analysis (Fall 2006)
    - Math 475: Capstone
      - Co-taught (Spring 2006, Spring 2007)
    - Math 485: Capstone Preparation (Fall 2006)

Honors 102: At Home in the Universe (Spring 2007, 2008)

- Instructor, Math/Science Upward Bound, CLU
  Courses:
  - Introductory Statistics (Summer 2005, Summer 2006)
  - PreCalculus (Summer 2010)

- Mathematics Instructor, Loyola Marymount University (LMU), August 2001 to May 2005
  Courses:
  - Math 101: Algebra (Fall 2001)
  - Math 102: Quantitative Skills for the Modern World (Spring 2002)
  - Math 111: Mathematical Analysis for Business I (Fall 2002, Fall 2004)
  - Math 112: Mathematical Analysis for Business II (Spring 2004, Spring 2005)

- Mathematics Instructor, Irvine Valley College, January 2002 to June 2002
  Courses:
  - Math 3B: Analytic Geometry and Calculus II (Spring 2002)

- Graduate Teaching Assistant, UCLA, September 1999 to March 2004
  Courses:
  - Math 1: PreCalculus (Summer 2001)
  - Math 2: Finite Mathematics (Summer 2001, Winter 2004)
  - Math 3A: Calculus for Life Sciences Students (Fall 1999, Fall 2000)
  - Math 3B: Calculus for Life Sciences Students II (Winter 2000)
  - Math 3C: Calculus and Probability for Life Sciences Students (Fall 1999)
  - Math 31A: Differential Calculus (Fall 2000, Winter 2001)
  - Math 31B: Integration and Infinite Series (Winter 2001)
  - Math 31E: Calculus for Economics Students (Winter 2000)
  - PIC 1: Intro to Computers and Computing (Spring 2000, Spring 2001)

- Research Contractor, Jet Propulsion Laboratory, Pasadena, CA, June 1999 to September 1999

Research with Undergraduates

- Advisor to Lydia Cleveland (2010) *Wallpaper Groups – Euclidean and Hyperbolic*, Senior Capstone Project, CLU
- Advisor to Ashley Bentz (2008-2009) *Explorations of the Four Color Theorem*, Senior Capstone Project, CLU.
- Advisor to Kesley Hart (2008-2009) An Investigation
- Advisor to Jeff Akkerman and Kristina Klug (Summer 2008) *Cigars, Band-aids and the Shape of the Universe: Investigating the Proof and Higher Implications of the Poincare Conjecture*, Swenson Summer Research Project, CLU.
- Advisor to Terri Kimmel (2007-2008) *Square Patterns in Rayleigh-Benard Convection*, Senior Capstone Project, CLU.
- Advisor to Marissa Predmore (2006-2007) *Meta Problems in Mathematics*, Senior Capstone Honors Project, CLU.
- Advisor to Jason Baehne (2005-2006) *Investigating Potential Orderings of Polyhedra*, Senior Capstone Project, CLU.

Select Honors and Awards

- Awarded Tenure at CLU, February 2009
- Community Leaders Association Award
    Co-authored proposal for CLU Math department (Amount funded: $15,030.00), 2009
- Hewlett Award, Internal Research and Travel Grant
    CLU, 2007 and 2006 (Amount funded: $1000 each year)
- Project NExT (*New Experiences in Teaching*) Fellow
    Awarded through the Mathematical Association of America, 2005-2006
- Robert Sorgenfrey Distinguished Teaching Assistant Award
    UCLA, 2004

Publications and Presentations

- M. Predmore (April 2008) *The Box Problem*, Rose-Hulman Undergraduate Math Journal. Volume 9, Issue 1 (2008).
    This publication discussed the results from Marissa's Honors Research performed under my supervision.

- C. Soderlund (July 2007) *Fixed Point Sets of Fiber-Preserving Maps.* Paper presented by invitation at the international conference on Nielsen Theory and Related Topics, Bedlewo, Poland.

- C. Soderlund, R.F. Brown (May 2007) *Fixed Point Sets of Fiber-Preserving Maps*, Journal of Fixed Point Theory and Applications. Volume 2 (2006), Article ID 46052. Special volume dedicated to Albrecht Dold and Edward Fadell, by invitation.

- C. Soderlund (January 2007) *Fixed Point Bundles of Fiber-Preserving Maps (extended version with proofs).* Paper presented by invitation at the Topology Seminar, Department of Mathematics, UCLA.

- ---------- (January 2007) *Fixed Point Bundles of Fiber-Preserving Maps.* Paper presented by invitation at the meeting of the American Mathematical Society, New Orleans, LA.

- ---------- (April 2006) *Fixed point sets of maps homotopic to a given map*, Fixed Point Theory and Applications. Volume 2006 (2006), Article ID 68513.

- ---------- (April 2006) *Standard and Not-So-Standard Proofs of the Fundamental Theorem of Algebra.* Invited address at CSU Channel Islands mathematics seminar, Camarillo, California.

- ---------- (November 2005) *From Calculus to Topological Fixed Point Theory.* Invited address at Westmont College Science Seminar, Santa Barbara, California.

- ---------- (January 2005) *A Characterization of Fixed Point Sets In a Given Fiber-Homotopy Class.* Paper presented at the meeting of the American Mathematical Society, Atlanta, Georgia.

- ---------- (December 2004) *Fixed point sets of maps homotopic to a given map.* Paper presented at the Faculty seminar, Department of Mathematics, LMU.

- ---------- (June 2004) *Characterizing fixed point sets in a given homotopy class.* Paper presented at the international conference on Nielsen Theory and Related Topics, St. John's, Newfoundland, Canada.

- ---------- (January 2004) *Characterizing fixed point sets in a given homotopy class.* Paper presented at the meeting of the American Mathematical Society, Phoenix, Arizona.

- ---------- (October 2003) *Nielsen theories for multivalued functions.* Paper presented at the Topology seminar, Department of Mathematics, UCLA.

- ----------, Brown, R.F., Yi, P. (March 2003) *Applications of Nielsen theory to dynamics.* Paper presented at the Topology seminar, Department of Mathematics, UCLA.

- ---------- (November 2002) *Characterizing fixed point sets.* Paper presented at the Topology seminar, Department of Mathematics, UCLA.

Mathematical Activity

- (October 2008) CLU Student Research Symposium
  Served on advisory committee
  My summer students presented their research.
- (September 2008) Participated in Math Department Teaching Retreat
- (January 2008) Joint Meetings of the American Mathematical Society and the Mathematical Association of America, San Diego, CA.
  Judged Undergraduate Poster Session
  Interviewed candidates for math faculty position
- (January 2008) Attended the faculty retreat *Educational Effectiveness in Action: Enriching the CLU Learning Community*
- (January 2008) Attended the faculty workshop *Plagiarism-Proofing Your Assignments: Education, Design and Enforcement*
- (2007 – present) Organized Math Department Seminar Series.
- (October 2007) CLU Student Research Symposium
  Served on advisory committee
  Moderated a session
- (September 2007 – present) Met weekly with research colleague Catherine Lee, Ph.D.
- (July 2007) Presented paper at the Topological Theory of Fixed and Periodic Points Research Conference, Poznan, Poland
- (May 2007) Wrote a proposal for Association of Women in Mathematics travel grant
- (April 2007) Moderated a session at the Pacific Coast Undergraduate Mathematics Conference
- (January 2007) Joint Meetings of the American Mathematical Society and the Mathematical Association of America, New Orleans, LA.
  Presented paper mentioned above
  Participated in NExT activities
  Judged Undergraduate Poster Session
- (October 2006) CLU Student Research Symposium
  Served on advisory committee
  Presented certificates to participating students
- (October 2006) Fall Meeting of the Southern California – Nevada Section of the Mathematical Association of America, CSU Long Beach
- (August 2006) Mathfest, the Annual Summer Meeting of the Mathematical Association of America, Knoxville, TN.
  Co-coordinated panel on creating and implementing interdisciplinary courses
  Participated in NExT activities
- (May 2006) 20th Annual California State University Student Research Competition

Served as juror for graduate session in Physical and Mathematical Sciences
- (April 2006) Spring Meeting of the Southern California – Nevada Section of the Mathematical Association of America, CSU San Bernardino.
  Judged Graduate Poster Session
  Brought undergraduate student to display poster
- (January 2006) Joint Meetings of the American Mathematical Society and the Mathematical Association of America, San Antonio, TX.
  Participated in NExT activities
  Co-coordinated special session on Interdisciplinary Teaching and Research
  Judged Undergraduate Poster Session
- (2005 – present) Member of the Mathematical Association of America.
- (October 2005) Fall Meeting of the Southern California – Nevada Section of the Mathematical Association of America, CSU Channel Islands.
- (October 2005) Second Annual Cal Lutheran Student Research Symposium, CLU.
- (August 2005) Mathfest, the Annual Summer Meeting of the Mathematical Association of America, Albuquerque, NM.
  Participated in NExT activities
- (April 2005) The n+2nd Southern California Topology Conference, Caltech.

RONALD V. RIEGER

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rvrieger@rmcsolutions.com

SUMMARY

Mr. Rieger has over 45 years experience in high technology activities, new product R&D, management, consulting, and university teaching. He has designed and/or been responsible for the development of dozens of end-user and system-level hardware/software products. In addition, Mr. Rieger has been a key player in a variety of business management activities including strategic and tactical business planning, performance and data analysis using specialized pattern matching algorithms and probability models; systems integration and data capture/analysis for such organizations as technology companies, hospitals, airlines, universities, and banks; project and product evaluations, and several successful restructuring and reorganization activities. Mr. Rieger currently has patents pending for some of his product designs and pattern matching algorithms.

PROFESSIONAL EXPERIENCE

RMC Integration   **1977-Present**

In 1977, Mr. Rieger formed what is now RMC Integration (RMC). RMC is a small software/hardware R&D and consulting organization. Its customer base crosses many industries including education, government, medicine, banking, sports, manufacturing, retail, security, and transportation. RMC employs students for much of its development work. Activities include Internet-based systems development, systems integration, performance and data analysis, process monitoring and control, embedded systems, intelligent systems, optimization algorithms, special languages and systems development tools, corporate reorganizations, and project and program management.

Examples of Mr. Rieger's clients include Dacor (manufacturer), Docufide/Parchment, Advanced Medical Information Technology Inc., NES Rentals, Dacor (manufacturer), UC San Francisco, CSU Channel Islands, United Airlines, First Interstate Bank, Hudson's Bay Co., SRI International, IBM, ITI-Tandem Computers, Hitachi, Nexiant, Advanced Motion Controls, Century Acceptance Corp., Chase Bank (International), PCSC (a security company), Ericsson Information Systems, First Interstate Mortgage Company, Imperial Thrift and Loan, Pioneer Electronics, TRW, Plessy Computer Systems, Security Pacific Bank, TransAmerica, City of Pomona, Unisys, Water and Power Federal Credit Union, and XP Systems.

A few of Mr. Rieger's activities include/included:

Research, Design, and Development

- State-of-the art android/smart phone/embedded system and award winning interface for an oven manufacturer
- Aimmi, an intelligent, online system currently used for such activities as classroom management, real-time sensor/actuator control and data analysis, document and communications management, and security and safety.
- Simple robotic arm and embedded system for equipment repetition testing.
- Web-based, automated branch location selector with immediate, appropriate sales person notification
- Pattern matching document/contract signature verification system.
- Web-based, end-user product selector for a manufacturer.
- Embedded Ethernet interface/conversion firmware for plug-n-play serial and bus based devices.
- Online university faculty/staff recruiting, evaluation and assignment system supporting thousands of applicants
- Scalable, plug-n-play medical systems interface running on embedded through mainframe hardware.
- High performance relational DBMS, applications generator, and general parser.
- Kiosk/ATM touch screen systems with a universal interface (hack) into any online system.
- Bar code based inventory management system for the Navy.
- Multiple lending packages, university health club system, FASB accounting rules, an inventory control cost system, electronic funds transfer system, DB driven NLP package, and airline maintenance system front-end.

Consulting activities included:

X   Analysis/recommendations for international money trading system for an Italian bank

X   Denver baggage system recommendations leading to $110,000,000 successful vendor suite,

X   Boeing 777 onboard entertainment systems recommendations leading to a vendor change,

X   Design of a real-time, relational DBMS for process control activities for a Japanese manufacturer,

X   Mainframe DBMS/telecommunications analysis leading to IBM changing DB strategy from IMS to DB2,

X   Multiple company reorganization/restructurings, including short term (6 to 18 months) management of IT, accounting, and operations organizations and their restructuring,

X   High performance relational DBMS design, Airline ticket accounting system redirection, bank system conversion project management, state lottery system vendor selection, airline maintenance, workflow and document management system selection, new terminal and LAN hardware design, ATM manufacturer selection, bank/CU system and vendor selections, credit card payment system selection, hardware and software packages for many organizations, and technical strategic and tactical planning.

California State University Channel Islands   **2003-Present**

Lecturer in Mathematics and Computer Science: Classes taught include Algebra, Algorithms, Artificial Intelligence, Biostatistics, Database Systems, Embedded Systems, Math of Games, Robotics, and Simulation, Game Programming, Game Design, Grad Topics in Math, Student-Faculty Research, and Unix Systems Programming. Mr. Rieger was also a key player in Game and Robotics Engineering minors development, and completed a successful student-faculty research project to locate marijuana growers from National Guard images.

TRW   **1973-1977**

In Mr. Rieger's last position at TRW, he had responsibility for new product design and business development. Previous to this he held positions in project management, systems performance analysis, and new product software design and development. Activities included design and development of:

* new terminal/system product line,
* the first multi-bank ATM network in California,
* the first CODASYL based DBMS on mini-computers,
* the first Big Ticket Inventory system for a large Canadian retailer that allowed point-of-sale selection and automatic multi-warehouse delivery scheduling to any customer in Canada,
* large terminal system (1,000 to 10,000 terminal) network performance analysis,
* OS and telecommunications system development.

LA County Sanitation Districts   **1970-1973**

Mr. Rieger was responsible for all non-accounting systems and software. This included a successful $4,000,000 search for wastewater polluters using fuzzy logic and statistical analysis, and the selection and/or development of multiple monitoring/process control, and civil and chemical engineering systems.

NCR   **1969-1970**

As a systems programmer Mr. Rieger was responsible for new disk interface software and compiler development.

Autonetics (North American/Rockwell)   **1967-1969**

One of five new college graduates to develop a state-of-the-art, real-time, multitasking OS for ICBM and B2 Bomber guidance control testing. He also developed editors and other utilities for IBM minicomputers.

EDUCATION

Mr. Rieger received a BS in mathematics from CSULA, and a Masters in mathematics from UCLA. He also completed all course work for a Ph.D. in Operations Research from UCLA's School of Engineering and Applied Science, with minors in queuing theory and mathematics, plus additional graduate work in finance and AI.

ROGER A. ROYBAL
CURRICULUM VITAE

Department of Mathematics
California State University, Channel Islands
One University Drive
Camarillo, CA 93012   http://faculty.csuci.edu/roger.roybal
roger.roybal@csuci.edu

EDUCATION

Ph.D. **University of California, Santa Barbara,** Mathematics   July 2005
   Dissertation: *A Reproducing Kernel Condition for Indeterminacy in the*
     Multidimensional Moment Problem
   Committee: Mihai Putinar (chair), Charles Akemann, Michael Crandall
M.A. **UCSB,** Mathematics   September 2001
B.S. **Weber State University,** Mathematics   June 1998

TEACHING

Lecturer, California State University, Channel Islands   2005–present
   Taught classes in measure theory, real analysis, calculus, linear algebra, and
   precalculus as well as history of math online. Developmental math facilitator
   2007–2008. Coordinator of the University Math Tutoring Center 2005-2007.
   In charge of hiring, training, and scheduling tutors. Math Lab coordinator
   2011-2015. Supervising tutors in creating supplementary learning materials
   based on tutoring experience and student needs; funding from the Gates
   foundation, 2013-present.

Teaching Assistant and Teaching Associate, (18 quarters) UC Santa Barbara   1999–2005
   Courses included differential equations with linear algebra (I and II) and
   transition to higher mathematics.

Research Assistant, (3 quarters) University of California, Santa Barbara   2002–2004
   Supported by Prof. Mihai Putinar's NSF research grant.

Adjunct Professor, Weber State University   1998–1999
   Taught courses in precalculus, college algebra, and contemporary math.

RESEARCH

Areas of Interest: Operator theory and functional analysis, existence and uniqueness in the multidimensional moment problem.

Papers:
  A reproducing kernel condition for indeterminacy in the multidimensional moment problem, *Proc. Amer. Math. Soc.* 135 (2007) 3967-3975.
  Joint defect index of a cyclic tuple of symmetric operators, *Recent progress in operator theory and its applications,* 255-261, Oper. Theory Adv. Appl., 220, Birkhäuser/Springer Basel AG, Basel, 2012.
  On the role of group theory in the foundation of music theory, *preprint.*

Selected Presentations:

"Reproducing Kernels"   March 2015
> Graduate math seminar, California State University, Channel Islands

"Ingress and Graph Theory"   February 2015
> Undergraduate math colloquium, California State University, Channel Islands

"Historical maps, navigation, and coordinate systems"   February 2014
> Univ 398: Mapping and Mathematics, California State University, Channel Islands

"Changing keys in cyclic groups"   March 2010
> Undergraduate math colloquium, California State University, Channel Islands

"Invariance of the joint defect index of a tuple of symmetric operators"   September 2009
> International workshop on operator theory and applications, Guanajuato, Mexico

"The integral form of the spectral theorem"   September 2009
> Graduate math seminar, California State University, Channel Islands

"The joint defect index of a symmetric operator tuple"   August 2009
> Multiple operator theory workshop, Fields Institute, Toronto

"1 vs 100: Going beyond one dimension"   October 2008
> Undergraduate math colloquium, California State University, Channel Islands

"Modular Origami and the Euler Characteristic"   February 2007
> Undergraduate math colloquium, California State University, Channel Islands

"Machine learning, reproducing kernels, and operator theory"   November 2006
> Operator algebras and functional analysis seminar, UCSB

"Reproducing kernels and operators in the multidimensional moment problem"   March 2006
> Southeast Analysts Meeting, University of Florida

"Determinacy questions in the multidimensional moment problem"   July 2003
> Young Analysts Meeting of the Southeast 2003, Furman University

Organizational activities:

Graduate math seminar, California State University, Channel Islands
      Spring 2015

Special Session in Positivity in Noncommutative Settings, AMS Western Regional Section
      April 2010

Special Session in Advances in the spectral theory of operators, AMS Western Regional Section
      April 2007

Graduate mathematics student seminar, UCSB   2003-2004

Selected Conferences and workshops:

2015 Southeast Analysts Meeting, University of Georgia, Athens, GA	March 2015
2013 Fall Southern California-Nevada Section of the MAA, CSU Dominguez Hills	Oct. 2013
Southeast Analysts Meeting XXIX, Virginia Tech, Blacksburg, VA	March 2013
Joint Mathematics Meetings, San Diego, CA	January 2013
International Workshop on Operator Theory and Applications, Sydney, Australia	July 2012
Great Plains Operator Theory Symposium, University of Houston, Houston, TX	May 2012
West Coast Operator Algebra Seminar, Albuquerque, NM	October 2011
International Workshop on Operator Theory and Applications, Guanajuato, Mexico	Sept. 2009
Multiple Operator Theory Workshop, Fields Institute, Toronto	August 2009
Classical Analysis Conference, University of North Carolina, Chapel Hill	September 2007
Constructive Functions Tech 04, Georgia Tech	November 2004
Algorithmic, Combinatorial and Applicable Real Algebraic Geometry, MSRI	April 2004
Orthogonal Polynomials, Special Functions and Apps., University of Copenhagen	August 2003
Spectral Theory and Inverse Spectral Theory of Jacobi Operators, Snowbird, Utah	June 2003
Advances in Constructive Approximation, Vanderbilt	May 2003
Quadrature Domains and Their Applications, UCSB	March 2003

SERVICE

Supervising the master's thesis of David Randolph	Fall 2010-present
Committee on WASC: The CSUCI Commitment to Students and Student Success	2006-2007
Served on master's committee for David Barra	Spring 2009
Served on master's committee for Jonathan Detgen	Fall 2010
Supervised the master's thesis of David Mayorga	Graduated Summer 2011
Adviser to Math Club at California State University, Channel Islands	2005-present
Judge for undergraduate poster competition, Spring 2006 MAA Sectional	April 2006

AWARDS

Departmental Fee Fellowship   1999-2000, 2001-2004

Awarded by the Department of Mathematics, University of California, Santa Barbara.

Award for Original Research   1998

Awarded by the Department of Mathematics, Weber State University, for original research in mathematics.

REFERENCES

Prof. Mihai Putinar
University of California, Santa Barbara
mputinar@math.ucsb.edu

Prof. Raul Curto
University of Iowa
raul-curto@uiowa.edu

Prof. Ivona Grzegorczyk
California State University, Channel Islands
ivona.grze@csuci.edu

Prof. Jeff Stopple
University of California, Santa Barbara
stopple@math.ucsb.edu

Prof. Terry Loring
University of New Mexico
loring@math.unm.edu

ANNA N. TIVY

email: anna.tivy@csuci.edu

OBJECTIVE

A full time position as a Lecturer of Mathematics at CSU Channel Islands

EDUCATIONAL BACKGROUND

M.S. in Applied Mathematics (emphasis: Statistics),
California State University, Northridge, CA, May 2008
B.S. in Elementary Education with honors,
Astrakhan State University of Education, Astrakhan, Russia, June 1995

WORK EXPERIENCES

August 2014 – current, full time lecturer of mathematics at Channel Islands University of Camarillo, CSUCI. Responsibilities have included teaching Pre Calculus and Business Calculus courses; preparing and grading tests, managing office hours, attending department meetings and seminars, mentoring students, adapting textbooks, developing new courses and activities.

January 2013 – May 2013, full time substitute lecturer at Ventura Community College. Responsibilities have included teaching courses such as Calculus Math V21B, Statistics Math V44, Intermediate Algebra Math V03; holding office hours for students, managing online homework through MyMathLab for Statistics and Algebra students, adapting a variety of textbooks, participation in Flex activities and department meetings.

July 2008 – current, part time lecturer of Mathematics at Ventura Community College. Responsibilities have included teaching a variety of classes such as Calculus, Applied Calculus, Pre Calculus, Trigonometry, College Algebra, Intermediate Algebra, Beginning Algebra, Math Summer Bridge; working with students during office hours, monitoring SI's (Supplemental Instructor) work, adapting a variety of textbooks, evaluation of SLO, attending teaching conferences such as AMATYC and SITE Summer Institute, teaching Math through utilization of the smart board, notebooks, IPads or any other of today's innovative technologies.

January 2009 – July 2014, part time lecturer of Mathematics at Channel Islands University of Camarillo, CSUCI. Responsibilities have included teaching Pre Calculus course; preparing and grading tests, managing office hours, attending department meetings and seminars, mentoring students through Learning Assistant Program, adapting textbooks for Pre Calculus class supervising and running the lab for Pre Calculus and Business Calculus students.

January 2007 – July 2008, Intern at Ventura Community College. Responsibilities have included teaching lower division math classes such as Beginning Algebra, Pre Algebra, Intermediate Algebra.

January 2008– May 2008, Graduate Assistant at Northridge. Responsibilities included grading homework and midterms for Introductory Statistics, running recitation sections.

THESIS
Classical and Modern Variable Methods in Regression Analysis, 2008

The Beginnings of Basic Mathematical Principles and How to Teach Them in Elementary School, 1995

SYSTEM SKILLS
D2L, Blackboard, MyMathLab, Maple, Mathematica, WebWork, Minitab, SAS (beginner), PowerPoint, MS Word, Excel

ACTIVITIES
Developing and redesigning Precalculus course with undergraduate research module, Grant Keck Foundation, CSUCI, Summer, Fall 2014

Developing hybrid Precalculus course, CSUCI, Fall 2014

Variety of consulting jobs such as Implementation of Early Assessment Project and Embedded Research for Undergraduates, Project ACCESO, CSUCI, Spring, Fall 2014

Community Engagement: Discover CI with Precalculus students, Spring 2014

Mentored TA for the redesigned Precalculus course, Fall 2014.

Participant in the organization of the dinner event for English and Mathematics high school and college teachers, Ventura Community College, Spring 2013

D2L training including web enhance course, Ventura College, Spring 2013

Member of the hiring committee for part time Mathematics Instructor position, Ventura Community College, Fall 2013

MSTI Mentoring Program. Mentored undergraduate student in developing pedagogical skills while teaching Precalculus course, CSUCI, Spring 2012, 2013

SCCUR conference. Acted as evaluator of abstracts for many students' submissions for the conference. Advised and mentored Pre Calculus undergraduate research projects, CSUCI, Fall 2012.

The Basic Skills committee, Ventura Community College, Fall 2012

Independent Studies. Work included undergraduate research with one student in Mathematical Modeling Methods, Ventura Community College, Spring 2012

The textbook committee for a variety of courses, Ventura College, CSUCI, 2011, 2012, 2013, 2014

MAA conference, Fall 2011, 2012. Attendee.
AMATYC conference, Austin, TX, Fall 2011. Attendee.
CMC-3 South conference, Spring 2011, Winter 2013. Attendee.
AMATYC South, Spring 2010. Attendee.

SITE Summer Institute, Ventura Community College, Spring 2011

Assisted in running workshop for AMATYC competition, 2011, 2013

Online Pedagogy class, Spring 2011

Phuoc L. Ho

Email:
phuoc.ho@csuci.edu

Education

University of Kentucky, Lexington, Kentucky

- Ph.D., Mathematics, May 2010
  - Dissertation Topic: Upper Bounds on the Splitting of the Eigenvalues
  - Advisor: Peter Hislop
- M.A., Mathematics, May 2006
  - Master's Topic: Functions of Bounded Mean Oscillation

University of Tennessee at Chattanooga, Chattanooga, Tennessee

- B.S., Mathematics, August 2004
  - Concentration in Physics

Teaching Experience

California State University Channel Islands, Department of Mathematics

- *Math 150, Calculus I*, Spring 2015
- *Math 301, Discrete Mathematics for IT*, Spring 2015
- *Math 105, Precalculus*, Fall 2014
- *Math 150, Calculus I*, Spring 2014
- *Math 151, Calculus II*, Spring 2014
- *Math 240, Linear Algebra*, Spring 2014

Salt Lake Community College, Department of Mathematics

- *Math 1010, Intermediate Algebra*, Spring 2012
- *Math 1060, Trigonometry*, Spring 2012
- *Math 1210, Calculus I*, Spring 2012

University of Tennessee at Chattanooga, Department of Mathematics

- *Math 1830, Calculus for Management, Life, and Social Sciences*, Spring 2011
- *Math 2200, Elementary Linear Algebra*, Spring 2011
- *Math 1006, Intermediate Algebra*, Fall 2010
- *Math 1130, College Algebra*, Fall 2010
- *Math 2450, Introduction to Differential and Difference Equations*, Fall 2010

University of Kentucky, Department of Mathematics

- *Math 112, Trigonometry*, Spring 2009
- *Math 111, Introduction to Contemporary Mathematics*, Fall 2008
- *Math 162, Finite Mathematics*, Spring 2008
- *Math 114, Calculus II*, Spring 2007
- *Math 108R, Intermediate Algebra*, Fall 2006
- *Math 109, College Algebra*, Fall 2005

RESEARCH

Summer Undergraduate Research Advisor:

- Fourier Analysis and Applications, Summer 2014. Project ACCESO, funding provided by Title V, U.S. Department of Education Grant.

Research Interests:

- Analysis on differential forms; most recently, the splitting of the first two eigenvalues of the Laplacian acting on k-forms over domains connected by thin tubes.

PRESENTATIONS AND TALKS

California State University Channel Islands, Camarillo, California

- Intro. to Differential Forms and Eigenvalue Problems, Graduate Seminar, Spring 2014

University of Tennessee at Chattanooga, Chattanooga, Tennessee

- Upper Bounds on the Splitting of the Eigenvalues, Math Colloquium, Summer 2010

University of Kentucky, Lexington, Kentucky

- Upper Bounds on the Splitting of the Eigenvalues, PDE Seminar, Spring 2010
- Classical Hodge Theorem, Graduate Student Colloquium, Spring 2008
- L^2 Harmonic Forms on Rotationally Symmetric Manifolds, Qualifying Exam, Fall 2007
- Functions of Bounded Mean Oscillation, Master's Exam, Spring 2006
- Semigroups and the Hille-Yosida Theorem, Presentation, Spring 2006

EMPLOYMENT HISTORY

California State University Channel Islands, Camarillo, California

- Lecturer, Spring 2014 - present

Salt Lake Community College, Salt Lake City, Utah

- Adjunct Instructor, Spring 2012

University of Tennessee at Chattanooga, Chattanooga, Tennessee

- Visiting Assistant Professor, Fall 2010 - Spring 2011

University of Kentucky, Lexington, Kentucky

- Teaching Assistant, Fall 2004 - Spring 2010
- Teaching Assistant, Summer 2006
- Research Assistant, Summer 2007, 2008, 2009

University of Tennessee at Chattanooga, Chattanooga, Tennessee

- Math Tutor, 2001 - 2004

OTHER INFORMATION

Some Awards

- Research Assistant Fellow, University of Kentucky, Summer 2009
- Winston Massey Memorial Mathematics Award, Univ. of Tennessee at Chattanooga, 2004
- John W. Jayne Memorial Mathematics Award, Univ. of Tennessee at Chattanooga, 2003

Conferences

- Joint Meeting of the AMS and MAA, San Francisco, California, 13-16 January 2010
- One and Several Complex Variables Conference, University of Kentucky, 8 May 2008

American Mathematical Society, Member

REFERENCES

Peter Hislop (Advisor), University of Kentucky, hislop@ms.uky.edu
John Graef (Teaching), University of Tennessee at Chattanooga, John-Graef@utc.edu
Suzanne Mozdy (Teaching), Salt Lake Community College, suzanne.mozdy@slcc.edu

Phil West

Objective

Part-time position teaching lower division level college mathematics

Education

California State University Channel Islands
B.S. Mathematics / Computer Science (December 2009)
Graduated with Program Honors (CSUCI G.P.A. 3.89)
M.S. Mathematics (December 2014)

Teaching Experience

2014   Moorpark Community College   Moorpark, CA
Mathematics Instructor (Intern)
* Classroom instruction in College Algebra

2011-2014   California State University Channel Islands   Camarillo, CA
Teaching Associate
* Classroom instruction in College Algebra, Pre-Calculus, Hybrid Online Math Courses

2000–2002   Los Angeles Trade Technical College   Los Angeles, CA
CNC Programming / Machining Instructor
* Classroom instruction in CNC programming
* Provided hands on training in the operation of CNC machinery

1986–1988   Ramco Machinery   Newbury Park, CA
Applications Engineer
* Developed CNC training manual
CNC machine installation and training at customer sites

Current Employment

1997–2015   3D-CAM   Chatsworth, CA
Tooling and Prototype Machining Manager
* Supervised CNC machining of 3D molds and prototype parts
* CNC programming (SmartCam and MasterCam)
* Design of plastic injection molds utilizing ProEngineer and Solidworks software

Phil West 5790 Mulberry Ridge Dr., Camarillo, CA 93012 (805) 512-0569 kingpin93012@yahoo.com

List of Educational papers, presentations.

Dec. 2014: Completed Master Thesis, "A Computational Exploration of Gaussian and Eisenstein Moats".

Apr. 2014: Presentation to CSUCI Graduate Math Seminar entitled: "A Computational Exploration of Gaussian and Eisenstein Moats"

Apr. 1997: Rapid Prototyping business plan accepted as a finalist for presentation at the "Enterprise Development Center Forum", North Ranch Country Club, Thousand Oaks. (Sponsored by CLU and Southern California Edison).

Dec. 1996: Invited speaker for Rapid Prototyping Association of SME is (RPA/SME) December 10-11, 1996 Los Angeles, California , "CNC Machining -- Rapid Construction of Production Tooling."

CIRRICULUM VITAE

PERSONAL PROFILE
Name: Peter Yi, Ph.D.

Telephone: 805) 654-6400 x1353 (Work)

E-mail: peter.yi@csuci.edu
                 pyi@vcccd.edu

EDUCATION
Ph.D., Mathematics - UCLA, June 2003 - GPA: 4.0; R.F. Brown, advisor
A.B. (Summa Cum Laude), Mathematics (Major); Entomology (Minor) - UC Berkeley,
May 1998 - Major GPA: 4.0

RESEARCH AREA
Nielsen Fixed Point Theory; Algebraic Topology

PROFESSIONAL EXPERIENCE
2006-present   Lecturer
                 Department of Mathematics
                 CSUCI
2006-present   Associate Professor
                 Department of Mathematics
                 Ventura College
2004-2006   Assistant Professor
                 Department of Mathematics
                 CSUCI
2004-2006   Part-Time Faculty
                 Department of Mathematics
                 Ventura College
2002-2003   Dissertation Year Fellow

Graduate Division
UCLA
1998-2002   Teaching Assistant
Department of Mathematics
UCLA

PAPERS

- P. Yi and S. Kim, *Nielsen numbers of maps of aspherical figure-eight type polyhedra,* Forum Mathematicum. Volume 0, Issue 0, Pages –, ISSN (Online) 1435-5337, ISSN (Print) 0933-7741, DOI: 10.1515/forum-2012-0036, February 2013
- P. Yi and S. Kim, *The WYK algorithm: the Nielsen number for free fundamental group on two generators II,* preprint, 2010.
- P. Yi and S. Kim, *The WYK algorithm: the Nielsen number for free fundamental group on two generators I,* preprint, 2010.
- P. Yi, *An algorithm for computing the Nielsen number of maps on the pants surface*, Ph. D. Thesis, University of California, Los Angeles, 2003.

PRESENTATIONS

- Yi, P. (Fall 2004). Nielsen fixed point theory. Departmental Seminar, Department of Mathematics, CSUCI.
- -----; Brown, R.F.; Soderlund, C. (Winter 2002). Applications of Nielsen theory to dynamics. Topology Seminar, Department of Mathematics, UCLA
- ----- (Spring 2002). Bounds for fixed points on surfaces. Topology Seminar, Department of Mathematics, UCLA
- ----- (Winter 2001). A Nielsen-type theorem for area-preserving homeomorphisms of the two-disc. Topology Seminar, Department of Mathematics, UCLA.
- ----- (Fall 2001). An algorithm for calculating the Nielsen number on surfaces with boundary. Topology Seminar, Department of Mathematics, UCLA.
- ----- (Summer 2001). Fixed points and braids II. Topology Seminar, Department of Mathematics, UCLA.
- ----- (Summer 2001). Commutativity and Wecken properties for fixed points on surfaces and 3-manifolds. Topology Seminar, Department of Mathematics, UCLA.
- ----- (Summer 2001). Fixed points and braids. Topology Seminar, Department of Mathematics, UCLA.

AWARDS

2009-2010   Nickel & Nails Award
             Instructor of the Year
             Ventura College
2006-2007   Maximus Awards Nominee
             Outstanding Faculty Member of the Year
             CSUCI

2002-2003   Dissertation Year Fellow
             Graduate Division
             UCLA

CONFERENCES

2013, May 28-31   SITE: Summer Institute of Teaching Excellence 2.0
2009, November 12-15   AMATYC conference in Las Vegas, NV
2009, March 12-15   ICTCM conference in New Orleans, LA
2006, November 2-5   AMATYC conference in Cincinnati, OH

MEMBERSHIP

2007-present   American Mathematical Association of Two-Year Colleges
2004-present   Mathematical Association of America
1998-present   American Mathematical Society

MAMERTA M. SANTIAGO

Education:

Master of Arts in Mathematics, Azusa Pacific University

Math Coursework completed at Oxnard College: Math 115(College Algebra), Math 116(College Trigonometry), Math 121(Calculus II), Philosophy 107(Intro. To Logic)

Math Coursework completed at Ventura College: Math V20(Precalculus Mathematics), Math V21A(Calculus/Analytic Geometry I)

Bachelors of Commercial Education; Math Minor, University of the East, Philippines

Work History:

Math Lecturer, CSUCI -- Camarillo, CA 93012
Math 208 –Modern Math for Elementary School teachers.

Math Instructor, Oxnard Junior College – Oxnard, CA 2008-Present;
Part-time instructor: College Trigonometry, Math 14 (Intermediate Algebra 1 & 2).

Math Teacher (Grades 9-11) **Adolfo Camarillo High School**: Camarillo, CA 2008-2012. Full-time instructor: Pre-Calculus, Geometry Honors, Algebra 2

Math Teacher (Grades 7-9)**, Fort Herriman Middle School** – Herriman, UT 2007-2008. Full-time instructor: Algebra 1,

Math Instructor, Oxnard Junior College – Oxnard, CA 1989 – 2007;
Part-time instructor: Math 9 (basic mathematics), Math 10 (pre-algebra), Math 11 (elementary algebra), Math 14 (intermediate algebra), and College Algebra.

Math Teacher (Grades 9-11) **Adolfo Camarillo High School**: Camarillo, CA 1991-2007. Full-time instructor: Geometry Honors, Geometry Plane & Solid, Algebra 1 Honors, Algebra 1, Algebra 2, Pre-algebra, and sheltered classes for bilingual students in Spanish, Tagalog, Korean, Vietnamese, and Chinese. Serve as Advisor for International Club and Chairman of Academic Awards Program.

Math Teacher (Grades 9-12) **Rio Mesa High School** – Oxnard, CA 1990-91
Full-time instructor: Basic Math, Algebra 1, and Geometry. Advisor for Minority Engineering Student Association (MESA) club for minority students excelling in math and science.

Math Teacher (Grades 9-12) **Channel Island High School** – Oxnard, CA 1975–1990
Full-time instructor: Algebra, Geometry, Intro-Algebra and basic math classes.

Community Service : I do free tutoring in Math in grades 6-12 or college level in our community. I am an active member of the Filipino community in Ventura county whose goal is to preserve our Filipino Culture and heritage through education, language skill development and presentation of Filipino arts.

Awards & Recognition:

- Recipient of 2007 Teacher of the Year Award, Camarillo High School, CA
- Recipient of 2006 Wallace Stevens Award for outstanding part-time teacher, Oxnard Junior College, Oxnard, CA.
- Received certificate of recognition from University of California San Diego (nomination submitted by incoming freshman) – *"Recognizing commitment to providing students with a superior educational foundation and inspire to achieve academic and overall excellence."*
- Nominated five times to "Who's Who in American Education" by former high-school students.
- Received multiple nominations for "Teacher of the Year" high-school award.

jzuniga@vcccd.edu

Juan Zuniga

Objective   To comply with the best of my abilities with the duty of a Faculty of the Mathematics department.

Education

Masters of Science, Mathematics, emphasis in Cryptology
December 2009 CSU Channel Islands   Camarillo, CA

B.S. Mathematics, emphasis in Cryptology
December 2004   CSU Channel Islands   Camarillo, CA
Cum Laude; Honors in Mathematics

A.A. Mathematics
May 2002   Oxnard College   Oxnard, CA
Graduated with High Honors.

Related course work: abstract algebra, number theory, analysis of algorithms, real analysis, complex analysis, functional analysis, measure theory

Professional Experience

California State University Channel Islands   Camarillo, CA
Math Lecturer
- Lecturer of Mathematics at California State University Channel Islands. Teaching business calculus and other lower division mathematics courses.
                                        Spring 2013 – Current

Oxnard College   Oxnard, CA
Math Instructor
- Part-time Math Instructor at Oxnard College. Teaching from low-level math classes up to calculus series, differential equations, and linear algebra.
                                        Spring 2010 – Present

California Lutheran University   Thousand Oaks, CA
Math Professor
- Adjunct Math Professor at California Lutheran University. Teaching business mathematics.
                                        Fall 2010 – Spring 2011

Oxnard College   Oxnard, CA

Math Instructor (Intern)

- Intern as a Math Instructor at Oxnard College. Teaching from low-level math classes up to calculus series, differential equations, and linear algebra.

Jan. 2007- Dec. 2009

Oxnard College   Oxnard, CA

Tutor

- Math Tutor at Oxnard College.

Jan. 2000 – Dec. 2006

California Lutheran University   Thousand Oaks, CA

Math REU

- Math research on graph pebbling.

July-August 2004

The Tutoring Center   Oxnard, CA

Tutor/Mentor

- Tutor students from K-10th grade. I helped them in reading, writing, and mathematics. 10 students a week.

August 2002-January 2003

UCSB/Proyecto Access   Oxnard, CA

Mentor

- Teacher aide in a Math and Science program called Proyecto Access. I was a mentor for 20 junior high and high school kids.

July-August 2002

Research	**Dow-Key Microwave corporation** Worked with local company (Dow-Key Microwave corporation) designing a new model for switches with Dr. Krzysztof, J. Ciezarek and Dr. Ivona Grzegorczyk. **Summer Undergraduate Research Experience** Worked on Graph Pebbling: created the Modified Web Graphs (web graphs with a vertex in the middle); evaluated their pebbling number, with Dr. Cynthia Wyels. **Independent Research** • Image Analysis: Work with Dr Kathryn Leonard on the deformations of images and identifying the map that takes the original image to its deformed counterpart. • Worked on approximation of polygons with Dr. Jorge Garcia and two other classmates. **Independent Research** Working on rational points in the unit square with Dr. Jorge Garcia. **Graduate Research Internship Program (GRIP) at UCSB** —Worked on advanced topics in mathematics and research on rational points in the unit square, with Dr. Adil Yaqub, Dr. Ken Millett, and Dr. Joseph Stopple.

Presentations	**Combinatory of Switches** • MAA conference at San Diego University, DATE, (poster presentation) • Oral presentation CSU Undergraduate Research Competition at CSU Northridge, DATE, (oral presentation). • MAA conference at UN Las Vegas, DATE, (oral presentation). • Poster presentation on at the MAA conference at USC. • CSU Channel Islands Mathematics Seminars. **Pebbling Modified Web Graphs** • Meeting of the Southern California-Nevada Section of the Mathematical Association of America at UN Las Vegas (PowerPoint). • SCCUR conference at Whittier College (PowerPoint). • Poster Presentation at Joint Mathematics Conference at Atlanta, Georgia. • CSU Undergraduate Research Competition at CSU Sacramento (PowerPoint). • Poster Presentation at the Meeting of the Southern California-Nevada Section of the Mathematical Association of America at USC. o First Place "Best Project" Award, Spring 2005 • CSU Channel Islands Mathematics Seminars (PowerPoint). **Approximation of Polygons** Presented Approximation of Polygons at CSU Channel Islands Mathematics seminars.

Rational Points in the Unit Square
- Poster presentation at the Meeting of the Southern California-Nevada Section of the Mathematical Association of America at California State University San Bernardino.
  - Honorable Mention Award, Spring 2006
- CSU Research Competition at CSU Channel Islands (PowerPoint). May 6, 2006
- CSU Channel Islands Mathematics seminar.

Awards	
	• Graduated *cum laude* and with Honors in Mathematics, May 2005 (CSU Channel Islands)
	• Who's Who Among Students in American Universities and Colleges (2004, 2005)
	• Dean's Honor List (CSU Channel Islands)
	• 2000-2001 Outstanding Mathematics Student (Oxnard College)
	• Oxnard College Dean's Honor List Spring 2000
	• Associated Student Government Scholarship for Athletics
	• Oxnard College Statistics Scholarship
	• Oxnard College Calculus Scholarship
	• The National Dean's List Honoring America's Outstanding College Students (2002, 2003)
	• Moorpark College Dean's List for Spring 2002

Skills	
	• Ability to Program in Java, C and Latex
	• Trilingual: English, Spanish, and Mixteco

Leadership	
	• President of the California State University Math Club, Fall 2004
	• Vice-President of the Student California Teachers Association at Oxnard College, Fall 2002

Accreditations	
	CRLA (College Reading & Learning Association) REGULAR TUTORING CERTIFICATE

References

Jorge Garcia, Professor of Mathematics, CSU Channel Islands, jorge.garcia@csuci.edu, (805) 437-2769 One University Drive, Camarillo, CA 93012

Ivona Grzegorczyk, Professor of Mathematics, CSU Channel Islands, Department Chair, ivona.grze@csuci.edu, (805) 437-8868

Cynthia J. Wyels, Professor of Mathematics, CSU Channel Islands, cindy.wyels@csuci.edu, (805) 437-3260

Kathryn Leonard, Associate Professor of Mathematics, CSU Channel Islands, Teacher Intern Supervisor, kathryn.leonard@csuci.edu, (805) 437-3127, One University Drive, Camarillo, CA 93012

CURRICULUM VITAE

James William Sayre

| | University of California, Los Angeles |
| Place of Employment: | |

<u>EDUCATION:</u>

1969	BA	University of California, Los Angeles, Los Angeles, California (Economics)
1971	MS	California State University, Long Beach, Long Beach, California (Operations Research and Statistics)
1974	MS	University of California, Los Angeles, Los Angeles, California (Biostatistics)
1977	DPH	University of California, Los Angeles, Los Angeles, California (Biostatistics Minor: Epidemiology)

<u>PRINCIPAL PROFESSIONAL POSITIONS:</u>

1996-	ADJUNCT PROFESSOR OF BIOSTATISTICS Department of Biostatistics, School of Public Health, UCLA
1996-	ADJUNCT PROFESSOR OF RADIOLOGY Department of Radiology and Biomedical Physics Interdepartmental Program, School of Medicine, UCLA
2004-	Medical Informatics Program, Biomedical Engineering Interdepartmental Program,
1990-96	PRINCIPAL STATISTICIAN, Department of Radiological Sciences, School of Medicine, UCLA
1990-96	ADJUNCT ASSOCIATE PROFESSOR OF BIOSTATISTICS Department of Biostatistics, School of Public Health, UCLA

1991-96   ADJUNCT ASSOCIATE PROFESSOR OF RADIOLOGICAL SCIENCE
Department of Radiological Sciences and Biomedical
Physics Program, School of Medicine, UCLA

1985-90   PRINCIPAL STATISTICIAN, School of Public Health, UCLA

1982-90   ADJUNCT ASSISTANT PROFESSOR OF BIOSTATISTICS
Department of Biostatistics, School of Public
Health, UCLA

1981-85   PRINCIPAL STATISTICIAN, Division of Epidemiology
School of Public Health, UCLA

1979-85   DIRECTOR, Data Management and Analysis Laboratory
Division of Epidemiology, School of Public Health,
UCLA

1977-81   SENIOR STATISTICIAN, Division of Epidemiology,
School of Public Health, UCLA

OTHER POSITIONS:

2004-   LECTURER OF MATHEMATICS
California State University, Channel Islands,
Camarillo, California

1983-85   ASSISTANT PROFESSOR OF HEALTH SCIENCES (Part Time
1996-04   Faculty), Department of Health Sciences, California
State University Northridge, Northridge California.

1975   ASSISTANT INSTRUCTOR, Division of Epidemiology,
School of Public Health, UCLA

1973   ASSISTANT INSTRUCTOR, Los Angeles County
Assessor's Office

1972-73   INSTRUCTOR, Quantitative Methods Department,
California State University, Long Beach, Long Beach,
California

MILITARY SERVICE:

Commissioned in July 1969 as a 2nd Lieutenant in U.S. Army.
Retired November 1996 as Lieutenant Colonel, Director of
Instruction, 6220th United States Army Reserve
Forces School, Patton U.S. Army Reserve Center
Bell, CA 90201-6499. Directed approximately 150 MOS course
instructors located in three satellite centers (San Deigo
Van Daemon Hall, Los Alamitos USARC, Long Beach Naval Reserve
Center), instructing over 1200 soldiers a year in various
military occupational speciality courses. Managed site
support and coordination with U.S.Army component schools
for course materials and examinations. Supervised course
enrollment and graduation through the ATAARS system.
Also served with 311th COSCOM as Chief of Rear Operations and
with 306th PSYOP BN (STRAT)as psychological operations officer.
Various projects while serving in these units included:program
input to the Psychological Operations Automated Management
Information System; designing and implementing battlefield
simulation software and hardware for IX Corps, Japan; and
system developement (software and hardware) for the Friendly
and Allied Nations Support System (FANS) for WESTCOM,Hawaii.
Assisted in the development of Field Manual (FM 100-19) on
Domestic Support Operations for TRADOC, Fort Monroe, VA.

MILITARY EDUCATION:

USAIS	Officer Basic Course	1972
USAIMA	Psychological Operations Course	1973
USAIS	Officer Advance Course	1982
Ft. Leavenworth	Command and General Staff College	1985
Ft. Lee	Associate Logistics Executive Development Crs.	1990
USAF Hurlburt Field	Battle Staff Air-Ground Ops Crs.	1993

GRANTS:

Senior Statistician, "Health Status of American Men"
    National Institute of Child Health and Development,
    Contraceptive Branch, NIH, N01-HD-6-2807, Oct. 1,1976
    Dec. 1, 1979. $1,046,334. P.I. Frank Massey Jr.

Co-Investigator, "Epidemiologic Impact of Groundwater
    Recharge," L.A. County Sanitation Districts, 10/1/79 -
    3/31/82 - $541,617

Principal Statistician, "Natural History of Acquired Immune
    Deficiency Syndrome (AIDS) in Homosexual Men,"NIH N01-
    AI-32511/National Institute of Allergy & Infectious
    Disease, 9/30/83 - 9/29/87 $26,692,813, P.I., R. Detels

Principal Statistician, "Role of Genetic, Immunologic &
    Geographic Factors in Multiple Sclerosis,"
    NIH IRO1N318317/National Institute of Neurologic &
    Communicative Disorders & Stroke, 2/1/83 - 11/30/84
    $384,514, P.I., B. Visscher

Principal Investigator, "Association Studies of Exercises
     Component", CDC/#17631, 2/1/85 - 6/11/86 - $15,000.

Principal Statistician, "Relationship Between Air Quality & the
     Respiratory Status of Asthmatics in L.A. County,"
     STCA SARB Al 151-33/State of California Air Resources
     Board, 7/1/82 - 12/31/84 $335,028 DC, P.I., H. Gong

Principal Statistician, "Cohort Study of Oxidant Exposure,"
     EPA R808 6200/Environmental Protection Agency,
     1981-1984 $875,314, P.I., R. Detels

Principal Statistician, "Changes in Lung Function & Exposure to
     Oxidants," STCA SARB A0-133-32/State of California Air
     Resources Board, 1981-1984 $400,000, P.I., R. Detels

Principal Statistician, "Low Fat Diet in Women with Stage II
     Breast Cancer," NCI CA 37583/National Cancer Institute,
     7/1/84 - 7/1/89 $714,137, P.I., R. Elashoff

Principal Statistician, "Shared Use Research Computers,"
     NIH S10-RR02498/National Institute of Health,
     7/1/85 - 7/1/86 $185,682, P.I., V. Clark

Principal Statistician, "AIDS Clinical Trials Group," NIH-NIAID
     AI 27660-04, 7/1/86 - 6/30/91, Fiscal 89-90, $2,041,119
     (direct cost)

Principal Statistician, "AIDS Clinical Research Center," 89C-
     CC86LA, U.S. Task Force, 7/1/88 - 6/30/90, direct 89-90,
     $757,000

Co-Investigator, "Advances in Lung Cancer Detection with
     Digital Techniques," U.C. Tobacco-Related Disease Research
     Program, 2RT0081, 7/1/91 - 6/30/94, $276,730.

Principal Statistician,"Clinical Center for the Clinical Trial
     and Observational Study of the Women's Health Initiative"
     N01-WH-4-2125, 9/30/94-9/14/05,PI Dr H Judd,$8,492,563.

Co-Project Leader, Infrastructure, Data Base, and Statistical
     CORE, "Research, Education, and Patient Care Facilitated
     by PACS" National Cancer Institute, NIH, 2 P01 CA 51198-
     06A1, $4,765,466. P.I. Hooshang Kangarloo

Principal Statistician,"Whole Body PET: 3-D Data Collection and
     Reconstruction",NIH, 2 R01 CA 56655-04,$1,094,690.00
     P.I. Edward J. Hoffman.

Principal Statistician,Investigator, Evaluation CORE,"PACS
     Infrastructure to Support Evidence-Based Medical Practice,
     Research, and Education",NIH,NCI,2 P01 CA 51198-06A2,
     $10,000,000.4/1/00-3/31/05 P.I. Hooshang Kangarloo

Investigator,"Computer Aided Diagnosis of the Solitary
      Pulmonary Nodule Imaged on CT",NIH,NCI, 2 R01 CA 56743-02,
      $1,081,374,07/01/00-06/30/04. P.I. Michael McNitt-Gray.

Investigator, "Positron Tomography in Ischemic Heart Disease"
      NIH/NHLBI 2 R01 HL33177 (16A1) $3,029,850. 09/01/00 -
      08/31/05, P.I. Heinrich Schelbert. 10% effort.

Biostatistical Consultant, "Diffusion/Perfusion Magnetic
      Resonance Assessment of Magnesium in Acute Stroke: A
      Clinical Trial NIH-NINDS K23 NS 020884/99-3/04
      $112,750/year, P.I. Chelsea Kidwell,5% effort.

Biostatistical Consultant," Characterizing the Ischemic Penumbra
      and Response to Intra-arterial Thrombolytic Therapy in
      Humans Using Diffusion/Perfusion MRI",AHA-Bugher
      Foundation Award for the Investigation of Stroke ,
      1/01-12/04,$100,000/year, Chelsea Kidwell, 5% effort.

Investigator, " Lung Imaging Database Resource for Imaging
      Research", NIH/NCI R01 CA83903,$1,491,324.
      04/01/01 - 03/31/06.P.I. Michael McNitt-Gray.10% effort

Investigator, "Patient-Specific Models in Lung Cancer Screening
      with CT" NIH/NCI R01 CA88973 ,$850,000. 12/01/00 -
      11/30/04. P.I. Matthew Brown , 5% effort

Biostatistician, "Biochemical Characterization of Breast Cancer
      In vivo", California BCRP Program, 7/1/01 - 6/30/05
      P.I. Albert Thomas, 5% effort.

Biostatistician, "Spinal Cord Tolerance to Radiosurgical Dose
      Delivery", 1RO1 NS049517-01A1 P.I. Paul Medin, 5% effort

Investigator, "Engineering Approach to Individually Tailored
      Medicine", NIH/NIBIB R01 EB000362, 08/31/03 - 09/01/09,
      P.I. A. Bui, 10% effort.

Investigator, "Medical Imaging Informatics Training Program"
      NIH/NLM IT15 LM07356, P.I. A Bui, 07/31/07 - 09/01/12.

Investigator, "An Imaging Based Disease Model for Understanding
      Bone Health",NIH/NIBIB R01 EB0009306 $477,847, P.I. H
      Kangarloo, 09/30/08 - 08/01/12, 20% effort.

Investigator, "Medical Imaging Informatics Training Program"
      NIH/NLM 1T15 LM07356, P.I. A. Bui, 07/31/07 -09/01/13.

Investigator, "Toward Individually-tailored Medicine:
      Probabilistic Models of Cerebral Aneurysms" NIH/NIBIB
      R01 EB000362 $376,463 annual direct, P.I. A. Bui, 07/31/09
      - 09/01/13 9% effort.

Investigator, "Data Structuring and Visualization System for Neuro-Oncology", NIH/NLM R01 LM009961, P.I. R. Taira, 07/31/09 -09/01/13

Investigator, "An Observational Acute Stroke Model for Decision Support and Comparing Outcomes" NIH/NINDS R01 NS076534, $356,304 annual direct P.I. A. Bui, 07/01/11 – 06/30/16 15% effort.

Investigator, "A Predictive Prognostic Model for Glioblastoma Multiforme" NIH/NCI R01 CA1575533 $175,795 annual direct, P.I. A. Bui, 06/30/12 – 07/01/17 14% effort.

Investigator, "RUMI: A Patient Portal for Retrieving Understandable Medical Information" NIH/NLM R01 LM011333 $200,100 annual direct ,P.I. A. Bui, 06/30/12 – 07/01/16 12% effort.

Investigator, "A Novel Multi-voxel Based Quantitation of Metabolites and lipids non-invasively Combined with Diffusion Weighted Imaging in Breast Cancer", U.S.Army/CDMRP W81XWH-10-1-0743 $132,269 annual direct, P.I. A. Thomas, 06/30/10 -09/30/13 4% effort.

Investigator, "Echo Planar Imaging based J-resolved spectroscopic imaging for improved metabolite detection in prostate cancer", U.S.Army/CDMRP W81XWH-11-1-0248 $120,840 annual direct, P.I. A. Thomas,06/30/11 – 07/01/14 3%effort

Investigator, "UCLA Center for Biological Radiation Mitigators", NIH/NAID 5U19A1067769 $1,678,295 annual direct, P.I. W. McBride, 08/31/05 – 07/31/15, 7% effort.

Investigator, "Functional Characterization of Cancer with MRI", Siemens Medical Solutions USA Inc. YCKA-2010-MR-02-01 36812, $250,376 total , P.I. D. Margolis, 08/01/10 – 06/30/14, 2% effort.

Investigator, "Development and Clinical Evaluation of the Clinical Role of MRI In The Identification of Subclinial Prostate Cancer and Selection of Patients for Active Surveillance", AdMeTech Foundation (DOD prime), 20133436, $34,091 annual direct, P.I. D. Margolis, 12/07/12 – 12/06/13 9% effort.

U.S. Patent 2009-406 – Wireless in Situ Sensors in Stents for the Treatment and Monitoring of Chronic Obstructive Lung Disease

PROFESSIONAL MEMBERSHIPS AND CREDENTIALS:

Nat'l Cancer Inst. Biomet. & Epi. Review Committee, 1988-90
American Statistical Association, Secretary and Treasurer,
Southern California Chapter (1985 - 1998)
Biometric Society,1974 - present
Society of Epidemiologic Research,1974 -
International Epidemiologic Association,1974 -
Community College Instructor Credential,1971
Society for Clinical Trials,1985 - present
Associate of the American College of Epidemiology,1985-present
Psychological Operations Association,1990 - 1996
Reserve Officer Association,1980 - 1996
Delta Omega (Scholastic Society in Public Health),1977

COURSES TAUGHT:

Introduction to Statistical Analysis, Summer & Fall Quarters

Applied Multivariate Analysis, 1982-5

Computer Management of Health Data, Fall, Winter Quarters

Quantitative Methods in Business, 1973

Statistical Methods and Data Analysis in Biomedical
    Physics, Winter Quarter

Biostatistical Consulting, Winter & Spring Quarters

Statistical Research Methods, Pulmonary Residents, Spring

Statistical Graphics, Winter Quarter

Review of Statistical Concepts in Radiology, Residents

Medical Decision Making in Biomedical Informatics, Winter

COMMITTEES:

Member, Computing Committee, UCLA School of Public Health
    1983-90
Member, Ad Hoc Scientific Review Committee, Contracts Review
    Branch, Division of Extramural Activities, National Cancer
    Institute, 1987-present
Member, Biometry and Epidemiology Contract Review Committee,
    National Cancer Institute, 1988-91
Member, National Institutes of Health Reviews Reserve (NRR),
    1991-present
Member, Tumor Registry Committee, UCLA Jonsson Comprehensive
    Cancer Center, 1993-
Member, Biostatistics, Computing and Epidemiology Program Area,
UCLA Jonsson Comprehensive Cancer Center, 1983-present

Member, Diagnostic Radiology Study Section, Multidisciplinary

Special Emphasis Panel, National Institutes of Health, 1993-

Member, MPH for Health Professionals Committee, School of
Public Health, 1993-

Member External Data Safety and Monitoring Committee for
Micro Therapeutics Tumor Embolization Clinical Trial, 2001

Member External Data Safety and Monitoring Committee for
Department of Neurology FAST-MAG Pilot Trial, 2001

Member External Device Safety and Monitoring Board for
Micro Therapeutics US Multicenter Onyx AVM Study, 2001

Member Peer Review Support Panel, United States Army Medical
Research and Material Command (USAMRMC) Congressionally
Directed Medical Research Programs (CDMRP), 2003

Member Peer Review Panel, Minister for Foreign Affairs,
Danish Council for Development Research, 2003

Member Peer Scientist Review Panel, Susan G. Komen for the
Cure Grants Program, 2009.

DOCTORAL COMMITTEE: UCLA School of Public Health

Lari Lance (Epidemiology)   DPH
Marc Rosenthal (Epidemiology)   DPH

UCLA School of Medicine

Michael McNitt-Gray (Biomedical Physics)   PHD
Flora Anne Lucas-Quesada (Biomedical Physics)   PHD
Indrin Chetty (Biomedical Physics)   PHD

CSUCI Department of Mathematics

Marc Morris-Rivera (Mathematics)   MS

CONSULTING:

1979-   Geriatric Evaluation Unit, VA Hospital, Sepulveda,
1973-76   Air Resources Board, Los Angeles County.
1974-   Goals and Development Committee, Los Angeles Lung
1983-   Research, Medical and Nursing Services, Wadsworth, VA
1987-   Interconnect, Network Consulting Group, Pasadena, CA.

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1988-     Harbor-UCLA Medical Center, Division of Medical
          Oncology, Torrance, CA
1991 -    Los Alamos National Laboratory, Wellness Center, NM.
1993 -    Olive View Medical Center, Sylmar, CA.
1993 -    House Ear Institute, LA, CA.
1993 -    Laboratory of Radiological Informatics, Department
          of Radiology, University of Calif, San Francisco, CA.
1996 -    Philips Research Laboratories, Department of Image
          Processing and Network Architecture, Briarcliff
          Manor, New York.
1996 -    Ross Products Division Abbott Laboratories,Columbus
          Ohio.
1997 -    Neoprobe Corporation, Dublin, Ohio.
1997 -    Micro Therapeutics, Inc., San Clemente,California.
1998 -    HY-GENE,Inc.Tissue Technology Innovation,Columbus,Ohio.
2000 -    Scientific Advisory Board, Digital Mammography Project,
          Charles R. Drew University of Medicine & Science
2000 -    Southern California Renal Disease Council,Inc.
          ESRD Network 18, HCFA.
2001 -    TransPacific Renal Network, ESRD Network 17, HCFA.
2001 -    Telemedicine and Advanced Technology Research Center
          TATRC, Fort Detrick,MD.
2001 -    BioLucent, Inc., Aliso Viejo, California
2004 -    University of California, San Diego, Radiology Depart.
2007 -    Guardian Technologies International -Signature Mapping
2008 -    Walter Reed Army Medical Center, Washington D.C.
2008 -    Navidea Biopharmaceuticals, Dublin, Ohio.
2009 -    Farus, LLC, Vista, California
2011 -    VA Greater Los Angeles Healthcare System
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PAPERS PRESENTED:

1.   Sayre, James W., Rokaw, Stanley, Massey, Frank J., Jr.,
     "Relationships of Forced Lung Function Measurements to
     Body Size for 9-11 Year Olds," 1974 annual meeting of the
     Society for Epidemiologic Research, Berkeley, California,
     June 19-22, 1974.

2.   Sayre, James W., Rokaw, Stanley, Massey, Frank J., Jr., "A
     Comparison of Forced Lung Function Measurements of
     Children in Different Areas of Los Angeles County," 1975
     annual meeting of the Society of Epidemiologic Research,
     Albany, New York, June 18-21, 1975.

3.   Sayre, J.W., Massey, Jr., F.J., Detels, R., Rokaw, S.N., and
     Tashkin, D., "Normal Standards for Forced Expiratory
     Lung Function Measurement in Children," presented at
     International Epidemiological Association IX Scientific
     Meeting, Edinburgh, August 22-29, 1981.

4.   Sayre, J., R. Elashoff, H. Wang, J.K. Lee. "The Effective
     Use of a Local Area Network for the Data Management of
     Clinical and Nutritional Data from a Multicenter
     Clinical Trial," Society for Clinical Trials, May, 1986.

5.   Sayre J. and P.A. Lachenbruch. "Experience with a Micro-
         computer Instructional Laboratory." Amer. Public Health
         Association, Las Vegas, Nevada, October, 1986.

6.   Sayre, J., "A Pattern Correlation Matrix Generated by the
         Interrelationships of Expiratory Flow-Volume
         Measurements and Analyzed using Principal Component
         Analysis," XIVth International Biometric Conference,
         Belgium, July 1988.

7.   Sayre, J. and Lachenbruch, P.A., "Experience with a
         Microcomputer Instructional Center in a School of Public
         Health," American Public Health Association, Boston, MA,
         Nov 13-17, 1988.

8.   Razavai, M., Sayre, J.W., Simons, M., Hamedaninia, A.,
         Boechat, M.I., Hall, T., Kangarloo, H., Taira, R.K.,
         Chuang, K.-S. and Kashifian, P., "Clinical evaluation of
         a 2K x 2K workstation for primary diagnosis in pediatric
         radiology," Conference on Image Physics Capture and
         Display Imaging Processing Archiving Systems, San Jose,
         CA, Feb. 23 - Mar. 1, 1991.

9.   Sankaran, A., Chuang, K.S., Sayre, J.W., Huang, H.K., Dwyer,
         S.J., III, "Computed Radiography, conventional
         radiography, and new chart systems: diagnostic
         accuracy," Radiological Society of North America,
         Chicago, IL, Dec 1-9, 1991.

10.   Liu, B.J., Huang, H.K., Guerrero, T.M., Sayre, J.W., and Ho,
         B.K., "Grid line artifact removal in compressed and
         decompressed CR Images," Radiological Society of North
         America, Chicago, IL, Dec 1-9, 1991.

11.   Eldredge, S.L., Sayre, J.W., Young, D.A., Hart, E., Hall, T.,
         Zucker, M., "Diagnostic accuracy of chart radiographs in
         reduced digital image formats," Radiological Society of
         North America, Chicago, IL, Dec 1-9, 1991.

12.   Sayre, J.W., Ho, B.K., Boechat, M.I., Hall, T.R., and
         Huang, H.K., "Subperiosteal resorption: Effect of
         full-frame image compression on diagnostic
         accuracy.", Society of Photo-Optical Instrumentation
         Engineers,Medical Imaging VI: Image Capture, Formatting
         and Display, Newport Beach, CA, Feb. 23 - 24 1992.

13.   Sayre, J.W., Lee, J.S., Liu, M., Dwyer, S.J., "Bayes Decision
         Techniques for Multiple Signal and Multiple Reader
         Evaluation of Image Display Modalities." 78th Scientific
         Assembly and Annual Meeting: Radiological Society of
         North America, Chicago, IL, Nov. 1992 Supplement to
         Radiology Vol 185.

14. Dwyer, S.J., Stewart, B.K., Sayre, J.W., Honeyman, J.C.,
         "Syllabus: A Special Course in Computers for Clinical
         Practice and Education in Radiology. Faculty for Special
         Course Presented at the 78th Scientific Assembly and
         Annual Meeting of the Radiological Society of North
         America. Nov 29, 1992.

15. Sayre, J.W., Lee, J.S., Stewart, B.K., Liu, M., Cox, G.G.,
         Dwyer,S.J., "Techniques for Multiple-Signal, Multiple-
         Reader Evaluation", Society of Photo-Optical
         Instrumentation Engineers, Medical Imaging VII: Image
         Capture, Formatting and Display, Newport Beach, CA,
         Feb.14-19, 1993.

16.   Thoma, G., Gray, R., Sayre, J.W., Olshen, R., "Image
         Compression Experimental Design", Digitized Radiographic
         Images Workshop:Challenges and Opportunities, NLM, NCHS,
         NIAMS, National Institutes of Health, Bethesda MD, June
         2-3, 1993.

17.   Sayre,J.W.,"Academia - Statistics and Biostatistics",Mar 6,
         1999,City of Hope National Medical Center, Duarte,CA
         Southern California Chapter of American Statistical
         Association.

18.   Sayre,J.W.,"Teleconsultation and Telemanagement Protocols
          for Evaluation of the Effectiveness of Telemammography",
         The Joint Working Group on Telemammography/Teleradiology
         and Information Management at the Hilton Crystal City at
         National Airport, Arlington Virginia, March 15-17,1999
         Sponsored by U.S.Public Health Service's Office on
         Women's Health and the National Cancer Institute and
         Co-Sponsored by the American College of Radiology.

19.   Sayre,J.W.,"Sequential Analysis of Complication Rates for
         Multicenter Randomized Controlled Clinical Trial", The
         Joint Meeting of the AANS/CNS Section on Cerebrovascular
         Surgery and the American Society of Interventional and
         Therapeutic Neuroradiology, New Orleans, LA, Feb.5-9,2000

20.   Sayre,J.W.,Huang,H.K.,"Evaluation of Next Generation
         Internet(NGI) for Medical Imaging Applications", Telemedicine
         and Advanced Technology Research
         Center(TATRC), Fort Detrich,MD, Mar. 15, 2001.

21.	Sayre,J.W. "Biostatistics and You: Career opportunities in Academics, Industry, and Government", California State University, Channel Islands, Mar. 29, 2006.

22.	Sayre,J.W. "Biostatistics: Career opportunities in Academics, Industry, and Government", California State University, Channel Islands, Sept. 5, 2007.

23.	Waters, J., Tewani, P., Taylor,A., Culjiat,M., Sayre,J. "Sample size calculations for in vivo burn experiments",SPUR/GR program UCLA, Aug. 10, 2011.

24.	Sayre, J.W., Cope, F., Chung, A." Does the 10%-"rule" of gamma counting for intraoperative sentinel node biopsy selection provide adequate data-based guidance for node selection?", Joint International Oncology Congress (JIOC) from May 27-29, 2013 in San Francisco, CA.

RESEARCH PUBLICATIONS:(Peer Reviewed)

1.	Strumpf, I.J., Simmons, M.S., Sayre, J.W. and Tashkin, D.P. "Biorhythm Theory and Asthma," Ann Allergy **41**:330-332, 1978.

2.	Detels, R., Rokaw, W.N., Coulson, A.H., Tashkin, D.P., Sayre, J.W., and Massey, F.J., Jr. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. I. Methodology and Comparison of Lung Function in Areas of High and Low Pollution," Am J Epidemiol **109**:33-58, January 1979.

3.	Strumpf, I.J. Tseng, A.H., and Sayre, J.W. "Re-evaluation of Sputum Staining for the Diagnosis of Pulmonary Tuberculosis," Amer Rev Respir Dis **119**:599-602, 1979.

4.	Tashkin, D.P., Detels, R., Coulson, A.H., Rokaw, S.N., and Sayre, J.W. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. II. Determination of Reliability and Estimation of Sensitivity and Specificity," Envir Res **20**:403-424, 1979.

5.	Rokaw, S.N., Detels, R., Coulson, A.H., Sayre, J.W., Tashkin, D.P., Allwright, S.S. and Massey, F.J., Jr. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. 3. Comparison of pulmonary function in three communities exposed to photochemical oxidants, multiple primary pollutants, or minimal pollutants," Chest **78**:252-262, 1980.

6.	Sayre, J.W. "The Distributions of the Actual Error Rates in Linear Discriminant Analysis," JASA **75**:201-205, 1980.

7. Chapman, J.M., Frerichs, R.R., Sayre, J.W., and Coulson, A.H. "Cardiovascular Disease in Los Angeles, 1980 Supplement to the Second Edition," American Heart Association - Greater Los Angeles Affiliate, Inc., July 1980-82.

8. Gong, H., Sayre, J.W., and Simmons, M.S. "Survey of residents' training goals in diagnosis and management of pulmonary diseases," Med Educ 15:154-160, 1981.

9. Detels, R., Sayre, J.W., Coulson, A.H., Rokaw, S.N., Massey, F.J., Jr., Tashkin, D.P. and Wu, M.M. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. IV. Respiratory effect of long-term exposure to photochemical oxidants, nitrogen dioxide, and sulfates on current and never smokers," Am Rev Respir Dis 124:673-680, 1981.

10. Detels, R., Sayre, J.W., Coulson, A.H., Rokaw, S.N., Massey, F.J., Jr., Tashkin, D.P., and Wu, M.M. "Respiratory Effect of Long-term Exposure to Two Mixes of Air Pollutants in Los Angeles County," Chest 801:275, 1981.

11. Armijo, R., Orellana M., Medina, E., Coulson, A.H., Sayre, J.W., and Detels, R. "Epidemiology of Gastric Cancer in Chile. I. Case-control study," Int J Epidemiol, 10(1):53-56, Mar 1981.

12. Armijo, R., Gonzalez, A., Orellana, M., Coulson, A.H., Sayre, J.W. and Detels, R. "Epidemiology of Gastric Cancer in Chile. II. Nitrate exposures and stomach cancer frequency," Int J Epidemiol, 10(1):57-62, Mar 1981.

13. Gong, H., Sayre, J.W., and Simmons, M.S. "Residents' Training Goals in Respiratory Knowledge and Skills: Perspective of Three Parties," Med Educ, 16:273-277, 1982.

14. Armijo, R. and Sayre, J.W., "Epidemiology of Gastric Cancer in Chile," Int J Epidemiol, 11(4):323-328, 1982.

15. Detels, R., Sayre, J.W., Tashkin, D.P., Massey, F.J., Coulson, A., Rokaw, S. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. V. Agreement and Disagreement of Tests in Identifying Abnormal Lung Function," Chest, 82:630-638, 1982.

16. Rubenstein, L., Wieland, G.D., Josephson, K., English, P., Sayre, J.W., "Improving Patient Selection For A Geriatric Evaluation Unit (GEU)," The Gerontologist, 23(5,#2):64,1983

17. Detels, R., Sayre, J.W., Tashkin, D.P., Massey, F.J., Coulson, A., Rokaw, S. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. VI. Relationship of Physiologic Factors to Rate of Change in FEV_1 and FVC," Am Rev. Respir Dis, 129:533-537, 1984.

18. Tashkin, D.P., Clark, V., Simmons, M., Reems, K., Coulson, A., Bourque, L., Sayre, J.W., Detels, R., Rokaw, S. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. VII. Relationship between Parental Smoking and Children's Lung Function," <u>Am Rev Res Dis</u>, **129**:891-897, 1984.

19. Rubenstein, L., Josephson, K., Wieland, D., English, P., Sayre, J., and Kane, R. "Effectiveness of a Geriatric Evaluation Unit: A Randomized Clinical Trial," <u>New England Journal of Medicine</u>, **311**:1664-1670, 1984.

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21. Tashkin, D.P., Clark, V., Simmons, M., Reems, K., Coulson, A., Bourque, L., Sayre, J.W., Detels, R., and Rokaw, S."The UCLA Population Studies of Chronic Obstructive Respiratory Disease. VIII. Effects of Smoking Cessation on Lung Function: A Prospective Study of a Free-Living Population," <u>Am Rev Respir Dis</u>, **130**:707-715, 1985.

25. Bryson,Y., Dillon,M., Lovett,M., Berstein,D., Sayre,J. "Treatment of First Episode Genital HSV iwth Oral Acyclovir:Long Term Follow-up of Recurrences. A Preliminary Report. Scandinavian Journal of Infectious Diseases. Supplement 1985,47:p.70-75.

23. Rubenstein,L.Z., Josephson,K.R., Wieland,G.D., English,P.A. Sayre,J.W., Kane,R.L.,"Efficacy of a Geriatric Evaluation Unit. A Controlled Randomized Trial", Rivista Dell Infermicre, 1985,Sept 4(3):152-61.

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26. Detels, R., D. Tashkin, J. Sayre, S. Rokaw. "The UCLA Population Studies of Chronic Obstructive Respiratory Disease. 9. Lung Function Changes Associated with Chronic Exposure to Photochemical Oxidants - A Cohort Study Among Never Smokers." <u>CHEST</u>, **92**:594-603, 1987.

27. Rubenstein, L.Z., Wieland, G.D., Josephson, K.R., Rosbrook, B., Sayre, J.W., Dane, R.L.,"Improved Survival for Frail Elderly Inpatients on a Geriatric Evaluation Unit (GEU):Who Benefits?", Journal of Chronic Disease,41(5):441-449,1988.

28. Kalunian, K.C., Peter, J.B., Middlekauff, H.R., Sayre, J.W., Ando, D.G., Mangotich, M. and Hahn, B.H. "Clinical significance of a single test for anti-cardiolipin antibodies in patients with systemic lupus erythematosus," American Journal of Medicine, **85**(5):602-608, 1988.

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31. Blankenberg,F., Conley,F.K., Sayre,J., Enzmann,D.,"MR Imaging in an Experimental Model of Brain Tumor Immunotherapy",American Journal of Neuroradiology, 1991,May-June,12(3):543-8.

32. Chlebowski, R.T., Sayre, J.W., Stromborg, M. and Bulcavage, L., "Current attitudes, practice, and perceived barriers of Clinical Oncologists to cancer prevention and control," J. Clinical Oncology, **10**(1):164-168, 1992.

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34. Dwyer, S.J., Stewart, B.K., Sayre, J.W., and Honeyman, J.C.,"Wide Area Network Strategies for Teleradiology Systems", RadioGraphics, **12**:567-576;May 1992.

35. Dwyer, S.J., Stewart, B.K., Sayre, J.W., Aberle, D.R., Boechat, M.I., Honeyman, J.C., Boehme, J.M., Roebrig, H., Ji, T.L., Blaine, G.J., "Performance characteristics and image fidelity of gray-scale monitors", RadioGraphics, **12**: 765-772;July 1992.

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1. Schaue,D., McBride, W., Sayre,J.W.,"Chloroquine engages the immune system to eradicate irradiated breast tumors in mice" International Journal of Radiation Oncology, Biology,Physics.(In Press)

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EDITORIAL COLLABORATION:

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EDITORIAL BOARD:

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Journal of Nuclear Medicine, 2007-2012.

REVIEWER:

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Health Services Research and Development (HSR&D) Service of the
    Veteran Administration (VA) Department of Medicine and
    Surgery, Washington, DC., 1982-present.
Journal of Investigative Radiology, 1992-present.
Journal of Academic Radiology, 1995-present.
Radiology, 1999-present.
Journal of Nuclear Medicine, 2004- present
Prentice-Hall, Advanced Mathematics Group
Circulation, 2004-present

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Education

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San Diego, California
> *Ph.D. Mathematics and Science Education*   Expected Oct 2015
> *Thesis title:* Mathematics, Mathematical Practices, and Arts Integration in an Activity-Based
> Projective Geometry Course
> *Advisors:* Dr. Ricardo Nemirovsky, Professor, SDSU & Dr. Chris Rasmussen, Professor, SDSU

University of Utah
Salt Lake City, Utah
> *M.A. Pure Mathematics*   May 2008

California State University, Chico
Chico, California
> *B.S. Mathematics*   May 2001

Research Activities

Research Assistant for PLURIS Project   Jan 2013 – Aug 2013
Center for Research in Mathematics and Science Education
> National Science Foundation Grant Award (#1044460),
> Kathy Williams & Brock Allen, Co-PIs
> Grant Title: Purposeful Learning in Undergraduate Research and Independent Studies
> (PLURIS)

Research Assistant for Tangible Math Project   Aug 2010 – Dec 2012
Center for Research in Mathematics and Science Education
> National Science Foundation Grant Award (#0816406), Ricardo Nemirovsky, PI
> Grant Title: Tangibility for the Teaching, Learning, and Communicating of Mathematics

Research Assistant for Project Z   Jan 2011-April 2011, Jan, Feb 2012
Center for Research in Mathematics and Science Education
> National Science Foundation Grant Award (#0918780),
> Lisa Clement Lamb & Jessica Pearson Bishop, Co-PIs
> Grant Title: Mapping Developmental Trajectories of Students' Conceptions of Integers

Teaching Experience

Lecturer, Mathematics   Aug 2009 – May 2009, Spring Semesters 2014 & 2015
California State University, Channel Islands, Camarillo, CA
- Courses include: Mathematics and Fine Arts, Elementary Algebra and College Algebra

Graduate Teaching Assistant, Mathematics   Aug 2013 – Dec 2013
San Diego State University, San Diego, CA
- Course: Foundations of Geometry

Instructor, Mathematics   Aug 2008 – May 2009
Modesto Junior College, Modesto, CA
- Courses include: Pre-Algebra, Elementary Algebra, Intermediate Algebra, Mathematical Ideas

Associate Instructor, Mathematics   Aug 2005 – May 2008
University of Utah, Salt Lake City, UT
- Courses include: Intro to Quantitative Analysis, Intermediate Algebra, College Algebra, Business Calculus

Social Dance Teacher   Feb 2008 – June 2008
Granite School District, Cyprus High School, Magna, UT

Professional Involvement

Invited talk, Mathematical Play as a Mathematical Practice, Hochschule für Wirtschaft und
        Umwelt, Nürtingen, Germany, October, 2014.

Invited talk, Broadening Horizons: Mathematical Instruments as Art Instruments. California
        State University, San Marcos, Learning Through the Arts, October, 2013.

Invited talk, Making the Infinite Seem Finite: Origins and Applications of Projective Geometry,
        California State University, Channel Islands, Department of Mathematics and Physics,
        April, 2014.

Invited talk, When Mathematical Instruments Become Art Instruments: Arts
        Integration in an Undergraduate Geometry Course, California State
        University, Channel Islands, Department of Mathematics and Physics, April, 2014.

Volunteer for CSUCI Science Carnival, Thurgood-Marshall Elementary School, Nov 2013 & Nov 2014,
        Oxnard, CA

Volunteer for San Diego Science Expo, Petco Park Stadium, March 2012 & March 2013, San Diego, CA

Panel Presenter, STEM or STEAM?: Integrating the Arts into STEM Education, SEEE (STEM
        Education, Economics, & Equity) Seminar Series, October 2012, San Diego, CA

Conference Presentations

Ernest, J. B. (2015, February). "What if we put this on the floor?": Mathematical Play as a Mathematical Practice. XVII Annual Conference on *Research in Undergraduate Mathematics Education*, Pittsburgh, PA.

Ernest, J. B. & Nemirovsky, R. (2013, July). Creating Art as a Catalyst for Making Meaningful, Personal Connections to Mathematics. *Bridges Conference: Mathematics, Music, Art, Architecture, Culture*, Enschede, The Netherlands.

Nemirovsky, R. & Ernest, J. B. (2013, July). Alberti's Window: Projective Geometry as the Geometry of Vision, *Bridges Conference: Mathematics, Music, Art, Architecture, Culture*, Enschede, The Netherlands.

Ernest, J. B. & Nemirovsky, R. (2013, January). Intersections: Undergraduate students' engagement with projective geometry and the arts. *Joint Mathematics Meetings*, San Diego, CA.

Nemirovsky, R., Ernest, J. B., & Kelton, M. (2012, February). Learning to play projective geometry: Enacting thought experiments. XV Annual Conference on *Research in Undergraduate Mathematics Education*, Portland, OR.

References available upon request.

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Educational Background:

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Vanderbilt University, M.A., Ph.D.

University of Southern California, J.D.

Professional Organizations:

Mathematical Association of America

American Philosophical Association

The State Bar of California

Current Employment: I am a lecturer in the Mathematics Program and the Smith School of Business and Economics at California State University Channel Islands. My current course assignments are Math 230, Logic and Mathematical Reasoning, MGT/BIOL 326, Scientific and Professional Ethics and Philosophy 320. I was the assigned lecturer for Math 230 since 2002 and for MGT/BIOL326 since 2004.

Community Service: I have been a member of the Bioethics Committee of the Ventura County Medical Center since 1982.   We develop policies for the ethical treatment of patients concerning advanced directives, life support, end stage medical care, transplants and informed consent and consult with medical staff and families as requested.

Philosophy Program: I have substantially contributed to the development of the philosophy program at Channel Islands. The philosophy minor has been approved. I am teaching the epistemology component of Philosophy 320, Being and Knowing, in the spring of 2015.

STEM and PLTL: I developed a twelve module lesson plan for the STEM center. A PLTL leader uses this plan to conduct group discussion and study concerning the subject matter of Logic and Mathematical Reasoning. I also coordinated with project ACCESSO with three sections of Math 230 in the spring 2014 semester.

Interdisciplinary perspective: As one trained in the law I provide an interdisciplinary perspective that promotes the cross fertilization of academic disciplines consistent with the University mission. Logical analysis required of lawyers supports my critical thinking responsibilities in both the logic and ethics courses. Skills learned in the law and in my academic career are mutually supportive and enriching. My legal experience enhances my class presentation of the subject matter of ethics relating to conflict of interest, ethical dilemmas in professional careers, and fiduciary obligations.

Course Assessments: The following structure from my MGT/BIOL 326, Scientific and Professional Ethics syllabus illustrates the method I use to adapt future teaching performance with reference to student and peer feedback.

Program Learning Goals: These are the skills we try to help you build in all MVS courses:

1. Critical Thinking
2. Oral Communication
3. Written Communication
4. Collaboration
5. Conduct (Ethics)
6. Competency in Discipline

Course Learning Outcomes and Link between Course Leaning Outcomes and Program Learning Goals:

Upon completion of the course students will be able to:

1. Describe the major elements of ethical theory. (1,2,3)
2. Analyze and present results of complex ethics cases. (1,2,3,5)
3. Prepare and give effective oral presentations about ethical issues. (2,4,5)
4. Conduct research and write a 1000 word paper on aspects of ethics. (1,3,5,6)

Each semester in the Martin V. Smith School I conduct an assessment of student achievement with respect to the specific program learning goal for the semester. In preparing my assessment I consider the annual peer review, student evaluations and my evaluation concerning student achievement of the stated learning goal. In a document called "Closing the Loop" I state what measures I have implemented to improve on my teaching given the input data from these three sources. I have significantly modified both the writing requirement and the format of class discussions based on this process.

I have incorporated this assessment rubric to adapt, revise, and restructure my teaching methodology in Math 230. For example, a major challenge I faced was to incentivize students to

practice logical reasoning outside of class so that they experienced self-reinforcing skill development. The adoption of APLIA, an on-line testing and homework module, was significantly influenced by my assessment process. I contributed to a published study (http://assets.cengage.com/pdf/cs_aplia_csuci.pdf.) concluding that the use of APLIA in conjunction with the traditional classroom instruction improved Math 230 grades.

Ventura County Deputy Sheriffs' Assn. v. Board of Retirement
Cal. | August 14, 1997 | 16 Cal.4th 483

Legal Experience: I served as Assistant County Counsel for the County of Ventura (1979-2005) with a concentration in litigation both at the trial and appellate levels. I am an active member of the State Bar of California and am available for consulting concerning matters pertaining to appellate litigation, bioethics, and business ethics. I was the primary counsel for the California Published Opinions attached. These court opinions were the focus of the issues I presented in the briefs submitted to the Courts. The preparation of the briefs was founded on my application of basic valid logical argument forms to the factual database presented by the cases.

Published Legal Opinions

CURRICULUM VITAE

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EDUCATION

B.S.   Mathematics and Computer Science with a minor in Spanish
Santa Clara University
June 2001

M.A.   Mathematics
University of California at Santa Barbara
December 2002

PhD   Mathematics
University of California at Santa Barbara
June 2006

TEACHING EXPERIENCE

Autumn 2001 -   **Teaching Assistant** (12 quarters) at U.C. Santa Barbara.
Spring 2006   Led weekly discussion sections and assisted the course
instructor in grading exams.

Summer 2003 -   **Teaching Associate** (5 quarters) at U.C. Santa Barbara.
Summer 2006   Taught classes ranging in size from 20 to 80 students in
which I supervised teaching assistants, gave lectures,
wrote and graded exams, and assigned grades.
Courses include Calculus with Applications, Linear Algebra
and Differential Equations, Fourier Series and Partial
Differential Equations, and Calculus for Social Sciences.

Autumn 2007 -   **Lecturer** at C.S.U. Channel Islands.
Present   Taught classes in Calculus, Linear Algebra, Mathematics for
Elementary/Secondary School Teachers, Real/Complex Analysis,
Abstract Algebra, and Number Theory (also at MA level).
Taught online course in Discrete Mathematics as well.

PUBLICATIONS

Sittinger, B.D., *The probability that random algebraic integers are relatively r-prime*, Journal of Number Theory **130**, 2010, 164-171.

Sittinger, B.D., *Further Recurrence Relations for Powers of the Partition Function*, submitted for publication.

Sittinger, B.D., *Computing $\zeta(2m)$ by using telescoping sums*, submitted for publication.

SERVICE

Spring 2008, 2009	Judge for poster competition, Spring MAA Sectional Meeting.
Spring 2009	Served on Master's committee for Victor Moreno.
Spring 2010	Undergraduate Seminar Coordinator at C.S.U. Channel Islands. Organized weekly presentations for the Undergraduate Seminar.
Summer 2011	Served on Master's committee for Jen Bonsangue and James McDonough.
Summer 2011-present	Supervising the Master's thesis for Phil West.
Spring 2012	Worked with Ryan DeMoss with his poster presentation at MAA Sectional Meeting at CSU Fullerton (won a prize).
Summer 2012	Served on Master's committee for Jaimee Morrison.
Autumn 2012	Undergraduate Seminar Coordinator at C.S.U. Channel Islands. Prepared math majors for GRE Subject Test in Math and Putnam Exam Served on Master's committee for Tammy Terzian.
Spring 2013	Served on Master's committees for Brandon Ausmus and Chinh Tran.
Summer 2013	Worked with Ricardo Suarez for his presentation of summer research with Dr. Glenn Henshaw and I.
Autumn 2014	Served on Master's committee for John Stebbins.

MS STUDENT

Phil West   *A Computational Exploration of Gaussian and Eisensteinian Moats*, Autumn 2014.

SELECTED PRESENTATIONS

Autumn 2007   "Why certain functions lack an elementary antiderivative"
Mathematics Graduate Seminar, C.S.U. Channel Islands.

Autumn 2008   "Number Theoretic Probabilities and the Zeta Function"
MAA SoCal Meeting, Harvey Mudd College.

Spring 2009   "Number Theoretic Probabilities and the Zeta Function"
Graduate Student Seminar, U.C. Santa Barbara.

Autumn 2009   "How Greed Is Good: The Rearrangement Inequality and its Consequences"
Mathematics Undergraduate Seminar, C.S.U. Channel Islands.

Spring 2010   "Getting Started in LaTeX" (Workshop)
Mathematics Undergraduate Seminar, C.S.U. Channel Islands.

Autumn 2012   "A Glimpse into the World of Modular Forms"
Graduate Student Seminar, C.S.U. Channel Islands.

Spring 2013   "An Overview of Number Theoretic Probabilities"
Graduate Student Seminar, C.S.U. Channel Islands.

Spring 2014   "A Different Perspective on Euler's Formula and Summation of Series via Multisecti
Graduate Student Seminar, C.S.U. Channel Islands.

Spring 2014   "Computing $\zeta(2m)$ via Telescoping Sums"
Mathematics Undergraduate Seminar, C.S.U. Channel Islands.

Autumn 2014   "Can primes be used to generate dense subsets in $\mathbb{R}$?"
Graduate Student Seminar, C.S.U. Channel Islands.

HONOR SOCIETIES

Pi Mu Epsilon   [Mathematics Honor Society] Membership in Spring 1998.

Phi Beta Kappa   Membership in June 2001.

AWARDS

Freshman Mathematics Prize in Spring 1998 from Santa Clara University.

George W. Evans Memorial Prize in Spring 1999, 2000 from Santa Clara University.

Paul Halmos Memorial Award (Excellence in Mathematics) in Spring 2001 from Santa

Clara University.

Raymond L. Wilder Award (Outstanding Achievement in Mathematics) in Spring 2002 from U.C. Santa Barbara.

Math Department Fee Fellowship from Autumn 2003 to Spring 2006 from U.C. Santa Barbara.

Outstanding Teaching Assistant Award in Spring 2006 from U.C. Santa Barbara.

Nominee for Maximus Award for Outstanding Teaching in Spring 2010 from CSUCI.

REFERENCES

Prof. Mihai Putinar
Department of Mathematics
Santa Barbara, CA 93106
mputinar@math.ucsb.edu

Prof. Birge Huisgen-Zimmermann
Department of Mathematics
Santa Barbara, CA 93106
birge@math.ucsb.edu

Prof. Jeff Stopple
Department of Mathematics
Santa Barbara, CA 93106
stopple@math.ucsb.edu

Prof. Ivona Grzegorczyk
Department of Mathematics
Camarillo, CA 93012
ivona.grze@csuci.edu

MATTHEW DIRK WIERS

matthew.wiers@csuci.edu
Statistician / Teacher

EDUCATION

The Ohio State University, Columbus, OH
Master of Applied Statistics (June 1988)

Indiana University, Bloomington, IN
Master of Business Administration, Quantitative Business Analysis (May 1985)

Hanover College, Hanover, IN
Bachelor of Arts, Economics and Math (May 1983)

EXPERIENCE

University Lecturer
    (July 2002 – Present)
        Serve as a lecturer in the mathematics departments at California State University Channel
        Islands teaching Applied Statistics for Business and Economics (MATH 329) - traditional, hybrid
        and online, Actuarial Sciences (MATH 428), Operations Research (MATH 429), and Research
        Design and Data Analysis (MATH 430). Nominated for a Maximus Award for teaching
        excellence in 2004. Served as lecturer in the mathematics department at California Lutheran
        University teaching Probability and Statistics (MATH 352 & 452) and Statistical Analysis for
        Managers (BUS 521).

Community College Lecturer
    (July 2002 – May 2003)
        Served as lecturer at Ventura College teaching Elementary Statistics (MATH 44) and Prealgebra
        (MATH 10), and at Oxnard College teaching Introductory Statistics (MATH 105) and
        Elementary Algebra (MATH 011).

Consulting Statistician & Writer
    (July 1998 – June 2002)
        Performed statistical analyses for Amgen of Thousand Oaks, and CroMedica of San Diego.
        Researched and wrote *Linear Modeling of Continuous and Categorical Response Data*, which
        utilizes original SPSS and JMP matrix programs for applications in Regression, ANOVA,
        ANCOVA, Repeated Measures, Correlation, and Weighted Least Squares Analysis of
        Proportions, Logits (Simple, Multiple, Cumulative), Marginal Homogeneity, and Loglinear
        Counts.

Industrial Statistician
    (July 1988 - June 1998)
        Worked as a statistician in the pharmaceutical industry (Amgen of Thousand Oaks), medical
        devices industry (Miravant of Santa Barbara), agricultural industry (Ciba-Geigy of Greensboro,
        NC), and engineering construction industry (Resource International of Columbus, OH).

REASEARCH

"Pooled Attributable Risk for 2 x 2 x K tables using Weighted Least Squares Estimation". Masters Thesis (Morris-Rivera, Wiers; March 2014).

"Measurement of Retinal Vascular Tortuosity and Its Application to Retinal Pathologies". *Medical and Biological Engineering and Computing* (Dougherty, Johnson, and Wiers; January 2010).

"Analysis of Covariance Using an Artificial Neural Network" (Wiers, Hill, and Forsythe; March 1995).

"Nonparametric Rank Based Main Effects Test Procedures for the Two-Way Layout". *Nonparametric Statistics* (Wolfe, Dean, Wiers, and Hartlaub; August 1991).

HOBBIES

Philosophy (Ethics/Politics), Birding, Piano, and Running/Fitness.

Jennifer Anne Brown (Horne)

office:
Mathematics Department
CSU-Channel Islands
One University Drive
Camarillo, CA 93012
Phone: 805-437-8897

RESEARCH INTERESTS

My primary research interests are in the areas of Boolean algebra and set-theoretic topology:

- Investigation into the Tukey types of ultrafilters on Boolean algebras

- Description of cardinal invariants on pseudo-tree algebras in terms of the structure of their underlying pseudo-trees

- Application of techniques from set theory and Boolean algebra to construct special points in Stone-Čech compactifications

EDUCATION

- Ph.D., May 2005, University of Colorado at Boulder.

  Dissertation: "Cardinal functions on pseudo-tree algebras and a generalization of homogeneous weak density"

  Supervisor: J. Donald Monk

- M.A., August 2000, University of Colorado at Boulder.

  Research topic: The transfer of "pathological" sets between Polish spaces

  Supervisor: Jan Mycielski

- B.S., August 1997, George Mason University.

  Major: Mathematics

PUBLICATIONS

- *Spectra of Tukey types of ultrafilters on Boolean algebras* (with Natasha Dobrinen), submitted.

- *Character of pseudo-tree algebras*, Order, DOI 10.1007/s11083-014-9338-4 [2014].

- *Remote points under the continuum hypothesis* (with Alan Dow), Algebra Universalis, Vol. 60 No. 3, pp. 345-364 [2009].

- *Remote points in products under CH*, Topology and its Applications, Vol. 155 No. 4, pp. 190-200 [2008].

- *Cellularity and the structure of pseudo-trees*, Journal of Symbolic Logic, Vol. 72 No. 4, pp. 1093-1107 [2007].

- *Cellularity of pseudo-tree algebras*, Notre Dame Journal of Formal Logic, Vol. 47 No. 3, pp. 353-359 [2006].

Teaching Experience

- Lecturer, 2008 - present, California State University Channel Islands, Mathematics Department.

  Lecturer for pre-calculus, calculus I and II, and business calculus. Instructor for a geometry-based course for math majors intending to teach high school mathematics, and a mathematics course for future K-8 teachers.

- Visiting Assistant Professor, 2007 - 2008, The College of William & Mary, Department of Mathematics and Computer Science.

  Instructor for Elementary Probability and Statistics, an introductory course intended for business and social science majors. Instructor for Linear Algebra and Calculus I.

- Visiting Assistant Professor, 2006 - 2007, Kenyon College, Department of Mathematics.

  Instructor for Abstract Algebra, Calculus A (first-semester Calculus) and Calculus C (third-semester calculus). Instructor for Euclidean and Non-Euclidean Geometry, a proof-based course for junior and senior mathematics majors. Second reader for several senior theses.

- Visiting Assistant Professor, 2005 - 2006, University of North Carolina at Charlotte, Department of Mathematics and Statistics.

  Lecturer for Introduction to Discrete Structures, a course mainly for computer science majors. Lecturer for Calculus I.

- Graduate Teaching Assistant, 1998 - 2004, University of Colorado at Boulder, Department of Mathematics.

  Lecturer for Calculus I and II, College Algebra, and Quantitative Reasoning and Mathematical Skills; grader for undergraduate set theory.

- Instructor, Summer 1998, George Mason University, Department of Mathematics.

  Lecturer for Calculus III.

Invited Talks

- AMS Sectional Meeting, Special Session on Set Theory and Boolean Algebras, University of Colorado at Boulder, April 2013. "On pseudotree algebras and their underlying pseudotrees".

- Joint Mathematics Meetings, AMS Special Session on Orderings in Logic and Topology, Washington, D.C., January 2009. "Pseudotrees under the interval topology".

- AMS Sectional Meeting, Special Session on Large Cardinals in Set Theory, Miami University, Ohio, March 2007. "Pseudotrees, cellularity, and κ-Suslin trees".

- ASL Annual Meeting, Special Session on Connections of Set Theory with Boolean Algebras and Topology, Gainesville, Florida, March 2007. "Topologies on pseudotrees".

Contributed Talks

- ASL North American Annual Meeting, University of Colorado at Boulder, May 2014. "The spectra of Tukey types of ultrafilters on several classes of Boolean algebras" (joint work with Natasha Dobrinen).

- 10th Prague Topological Symposium, August 2006. "Remote points in products under CH".

- Summer Conference on Topology and its Applications, Georgia Southern University, July 2006. "Remote points in products".

- Spring Topology and Dynamical Systems Conference, University of North Carolina at Greensboro, March 2006. "Remote points under CH".

- Summer Conference on Topology and its Applications, Denison University, July 2005. "Cellularity of pseudo-tree algebras".

- Boise Extravaganza in Set Theory, March 2005. "Cellularity of pseudo-tree algebras".

Colloquium Talks

- Graduate Mathematics Seminar, CSU-Channel Islands, October 2011. "A Very Short History of the Axiom of Choice".

- Mathematics Department Seminar, California Lutheran University, November 2008. "The Game of Hex".

- Graduate Mathematics Seminar, CSU-Channel Islands, October 2008. "A cardinal invariant on Boolean algebras, or, Why the finite case is sometimes harder than you think".

- Mathematics Department Colloquium, College of William and Mary, October 2007. "Pseudotrees, Suslin Trees, and Cardinal Functions".

- Mathematics/Computer Science Department Colloquium, Wittenberg University, November 2006. "Infinite Trees".

- Carolina Topology Seminar, UNC-Charlotte, Spring 2006. "Cellularity of pseudo-tree algebras", Parts I and II.

- Seminar Presentations, University of Colorado at Boulder, 2003-2004. Developed and led graduate seminar on Foundations of Mathematics; presented in Boolean algebra seminar; spoke in graduate lecture series.

Memberships in Professional Organizations

- American Mathematical Society (AMS)

- Association for Symbolic Logic (ASL)

- Association for Women in Mathematics (AWM)

References

Available upon request.

Ben Greenspan

Education
Master of Science in Statistics, June 2013
University of California, Los Angeles
GPA: 3.9

Thesis: *Survey of Recent Advances in Spatial-Temporal Marked Point Processes*
Thesis Abstract: Spatial-temporal point processes have been useful for applications in many fields, including the study of earthquakes, wildfires, and other natural disasters, as well as forests and other ecological data, neurological data, invasive species, epidemics, spatial debris, and others. Recent works draw new conclusions about general model, applications to earthquakes, higher-order statistics, or residual analysis. Summarize principles from many published articles.

Coursework:
Applied Probability, Research Design – Sampling – Analysis, Statistical Programming, Teaching College Statistics, Theoretical Statistics, Regression Analysis, Matrix Algebra & Optimization, Monte Carlo – Optimization, Social Statistics, Directed Individual Study

Bachelor of Science in Statistics, June 2010
University of California, Los Angeles
GPA: 3.5

Computing Skills
• R   • Sweave   • SAS / JMP   • SPSS   • Unix   • Beamer   • C++   • LaTeX
• SGML and NoSQL: HTML, XML, JSON, MongoDB   • Python   • emacs
• Regular expressions   • APIs   • Microsoft Office, Excel, Access, PowerPoint
• iWork Pages, Numbers   • qBasic   • Salesforce

Statistical Programming Coursework, 2010, includes:
Data Analysis of Web Access Logs Using Unix
The Apache Web server provided HTTP access logs stored at a domain on an Amazon Web Services cloud instance running Ubuntu. Navigate between machines, move data, change permission bits, walk through directories, redirect output in pipes, taking input from and sending output to files, sort and tally, and lookup usage in man pages.

Using Unix to Create Structured Lists of Ingredients from Unstructured Recipes
Create dictionaries for ingredients in NY Times' database of recipes using regular expressions. Describe the major meta characters, to use them to create patterns, and see how the machine moves along each character in a string. Followed the robustness principle to be tolerant of inputs and strict on outputs.

Web-Scraping Weekend Box Office Results by Python
Learn about basic data types, basic computations, as well as input and output relevant to a new language. Utilize community support. Question assumptions about its programmers and applications. Fetch objects in modules using dot expression syntax. Manipulate text strings using regular expression and beautiful soup modules

Published Articles

Asian American Drug Abuse Survey Data Analysis, reviewed by L. A. County Dept. of Public Health Substance Abuse Prevention and Control, Volume 2, Issue III, May 2010

Technical Reports

Data Analysis of Web Access Logs Using Unix
Using Unix to Recognize, Extract, and Create Structured Lists of Ingredients from Unstructured Recipes
Audio Search Algorithm in R
Web-scraping Weekend Box Office Results in Python
Analyzing Twitter's Public Timeline
Speed and the Design of Pinewood Derby Cars
The Holy Torah and Numbers
Technical Report on FEMA Flood Study
A Linear Regression of Career Success in the NBA
A Study on Campaign Finance in 2008
Survey of Attitudes towards Development of Lowes Home Improvement Store in Westlake Village

Honors & Activities

Toastmasters
Certificate for "Coding the Matrix: Linear Algebra through Computer Science Applications" from Coursera
George F. Kneller Scholarship Recipient
UCLA University Grant Recipient
SMART Grant Recipient
UCLA Dean's Honors List
Golden Key International Honor Society
Founder, Statistics Club at UCLA
Jewish Learning Initiative
Hillel
Alumnus, Pardes Institutes, Jerusalem & Los Angeles
Volunteer, Renovation After-School Center, Children from Poverty-Stricken Families, Baka, Israel
Nuclear Plant Senior Reactor Operator License Certification, Nuclear Regulatory Commission

Work Experience

Lecturer, Cal State University Channel Islands (2014-Present)
Lecture on Biostatistics to 20 students for 2.5 hours per week as well as manage the statistics lab that supports learning for 30 students for 5 hours per week; develop syllabi, lectures and subject material; engage active learners; maximize student achievement; update website on regular basis; create videos for blended learning.

Tutor, (2005 - 2014)
Private in-home math tutor for high school and college students; individual or in small group instruction daily or weekly; utilize specialized teaching techniques for student with visual processing disorder; courses include Geometry, Intermediate Algebra, College Algebra, Calculus for Business, Introduction to Statistics, CAHSEE Exam Prep, Marine Biology.

Grader, University of California, Los Angeles (2011 - 2013)
Mark assignments and maintain online grade book for Department of Statistics courses, including Introduction to Statistics, Introduction to Probability, Statistics for Engineers, and Introduction to Monte Carlo Methods.

Teaching Assistant, University of California, Los Angeles (2011)
Sole teaching assistant for Department of Statistics' Introduction to Monte Carlo Methods course; lead weekly review of professor's course material with presentation of added problems helpful for understanding of concepts and provide hints on graded problems without exact solutions; meet with students to dialogue about related topics.

Fellowship, Uri L'Tzedek (July 2012)
Train next generation of leaders through seminars and reflective conversations focusing on partnership building with stakeholders and creating innovative marketing strategies.

Independent Survey Designer and Analyst, Westlake Village United (Summer 2006)
Write, implement, digitalize, analyze, and report a statistical satisfaction survey of big box development upon local community (n=380) including social and environmental effects; Use survey data in marketing decisions for local political campaign; Web designer.

Sales, eCorporate Solutions @ Ford Tour de Georgia (April 2006)
Sales team member for official merchandiser of North America's premiere cycling race; while traveling with team, daily tasks include product delivery, product displays, and sales.

Stagehand, Another Planet Entertainment (August 2005 - January 2007)
Receive and ship concert equipment including audio, video, and lighting systems, as well as stage components at various venues including Greek Theatre; construct stages, audio, video, and lighting features for Jack Johnson, the Strokes, Tom Petty, and many others.

Marketing Street Team Member, Anschutz Entertainment Group (Summer 2005)
Direct marketing contact with customers in greater Los Angeles area promoting annual tennis tournaments; introduce thousands of individuals to the event via personal communication, as part of three-person field team.

Senior Reactor Operator, Reed College Nuclear Reactor (Fall 2003 - Spring 2005)
Promotion to Senior Reactor Operator license after early completion of elective program and accompanying upgrade exam; awarded Reactor Operator License by US Nuclear Regulatory Commission after passing multiple examinations. Responsibilities include supervising and working with staff; planning, scheduling, and performing experiments in Neutron Activation Analysis including start-up of facility, loading of samples into core; reactor shut-down; counting of radioactivity, and identification of elements after activation; keeping detailed logs of all operations; providing public education through conducting tours of facility; and full training of new operators.

Camp Counselor, Kindercamp (Summer 2004)
Create and supervise camp activities for children, ages 5-8.

Tutor, Homework Club, White Oak Elementary (December - June 2007)
Small group instruction in core content standards for student with learning disabilities, ADHD, and/or Asperger's Syndrome

Instructional Aide, White Oak Elementary School (Fall 2000 - Spring 2002)
Assist second grade teacher with small group instruction and one-on-one tutoring

Curriculum Vitae

Name: Dylan Robert Attwell-Duval

Email: attwellduval@math.mcgill.ca

Education:

- Ph.D. Mathematics, McGill University, 2015.
- M.Sc. Mathematics, McGill University, 2010.
- B.Sc. Pure Mathematics, University of Toronto, 2008.

Theses:

- *Algebraic and Geometric Properties of the Boundary of Orthogonal Shimura Varieties*, Ph.D. thesis, McGill, 2015, under the direction of E. Goren.
- *Evaluating zeta functions of Abelian number fields at negative integers*, M.Sc. thesis, McGill, 2010, under the direction of E. Goren.

Awards and honors:

- Alexander Graham Bell Canada Graduate Scholarships (2010 - 2013), NSERC.
- Max Binz Fellowship (2009-2010), McGill.
- Lorne Trottier Science Fellowship (2008-2009), McGill.
- Provost's Graduate Fellowship (2008-2009), McGill.
- Ontario Graduate Scholarship (declined), Ontario Government.
- Galois Award in Mathematics (2006-2008), University of Toronto.
- Dr. James Dickson Scholarship (2006-2007), University of Toronto.
- John Pounder Scholarship (2006-2007), University of Toronto.
- H.S. Robertson Prize (2006-2007), University of Toronto.
- Donald Macrae Scholarship (2005-2006), University of Toronto.
- Howard Ferguson Scholarship, (2004-2008), University of Toronto.

Contributions to research and development:

<u>Papers</u>

- Attwell-Duval, *On the number of cusps of orthogonal Shimura varieties*, Ann. Math. Qué. 38 (2014), no. 2, 119-131.

- Attwell-Duval, *Topological and algebraic results on the boundary of connected orthogonal Shimura varieties*. pp. 15 (pre-print).

<u>Invited talks</u>

- December 2014, Canadian Mathematical Society Winter Meeting, Hamilton.
  Orthogonal Shimura varieties and their cusps.

- April 2013, Montreal-Toronto Workshop in Number Theory, CRM Montreal.
  p-Divisible Groups: Definitions and Examples.

- April 2012, Montreal-Toronto Workshop in Number Theory, CRM Montreal.
  Kuga Varieties I.

- April 2011, Montreal-Toronto Workshop in Number Theory, Fields Institute Toronto.
  Chern numbers of Hilbert modular varieties.

- September 2010, Montreal-Toronto Workshop in Number Theory, CRM Montreal.
  Hodge Structures.

Recently attended conferences and workshops:

- April 2015, The Kudla Programme Workshop, Montreal.

- March 2015, p-adic methods in the Theory of Classical Automorphic Forms, Montreal.

- May 2013, Bellairs Workshop in Number Theory: Arithmetic intersection theory on Shimura varieties and derivatives of L-functions, Barbados.

- December 2012, CMS Winter Meeting, Montreal.

- June 2012, BIRS: Arithmetic Geometry of Orthogonal and Unitary Shimura Varieties, Banff.

Teaching Experience:

- Fall 2014, Fall 2013, Fall 2009, MATH 235 (Algebra 1) Teaching Assistant, McGill.

- Winter 2009, MATH 151 (Calculus B) Teaching Assistant, McGill.

- Fall 2007, Winter 2008, MATH135 (Calculus 1) Teaching Assistant, University of Toronto.

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Curriculum Vitae

ALFONSO ZAMORA

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Departamento de Matemática
Instituto Superior Técnico

e-mail: alfonsozamora@tecnico.ulisboa.pt

PERSONAL INFORMATION

Alfonso Zamora Saiz,

Nationality: Spanish

EDUCATION

2013   Ph.D in Mathematics, Universidad Complutense de Madrid, Spain. *Supervisor*: Prof. Tomás L. Gómez (ICMAT (CSIC-UAM-UC3M-UCM), Madrid, Spain).

2009-present   Licenciatura en Física, Universidad Nacional de Educación a Distancia, Spain (Bachelor's Degree in Physics). To finish in 2015.

2009   Master's Degree in Mathematics, Universidad Complutense de Madrid, Spain.

2008   Licenciatura en Matemáticas, Universidad Complutense de Madrid, Spain (Bachelor's Degree in Mathematics).

2007 Título Superior de Música: especialidad trompeta, Royal Conservatory of Music of Madrid, Spain (Bachelor's Degree in Music: trumpet).

POSITIONS

July 2014- Post Doctoral fellowship at Departamento de Matemática, Instituto Superior Técnico, Lisboa, Portugal (Project "Comunidade Portuguesa de Geometria Agebrica", Ref. RD 302)

November 2013-June 2013 Post Doctoral fellowship at Departamento de Matemática, Instituto Superior Técnico, Lisboa, Portugal (Project "Geometry and Mathematical Physics", FCT Portugal, Ref. FCT EXCL/MAT-GEO/0222/2012)

RESEARCH INTERESTS

Algebraic constructions of moduli spaces and stability conditions. Relations between stability in the sense of Geometric Invariant Theory and stability in algebraic, differential and symplectic frameworks. Stability in moduli constructions for bundles, sheaves, holomorphic pairs, triples, Higgs bundles, principal bundles and quiver representations.

GRANTS AND FELLOWSHIPS

July 2009 - July 2013 FPU doctoral grant, Ministerio de Educación, Spain, at ICMAT (CSIC-UAM-UC3M-UCM), Madrid, Spain.

2009 Research Grant, Department of Algebra of Faculty of Mathematics of UCM, Madrid, Spain (January-June).

2007 Scholarship to collaborate in the Department of Algebra of Faculty of Mathematics of UCM, Madrid, Spain (academic year 2007-2008).

2007 Research Grant, Consejo Superior de Investigaciones Científicas, Madrid, Spain (July-September)

2005 Excellent Academic Results Scholarship, Comunidad de Madrid, Spain (academic year 2005-2006).

2004 Excellent Academic Results Scholarship, Comunidad de Madrid, Spain. (academic year 2004-2005).

2003 Excellent Academic Results Scholarship, Comunidad de Madrid, Spain. (academic year 2003-2004).

RESEARCH VISITS

2014 National University of Singapore, participant invited to the program "The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles"(3 weeks).

2014 University of Pavia, Italy. Funded by Research Project ERC StG 307119 "Stability and wall-crossing in algebraic and differential geometry"(1 week).

2013 University of Liverpool, United Kingdom. Funded by Research Grant Ref. MTM2010-17389 of Ministerio de Educación, Spain (1 week).

2012 Columbia University, New York City, USA. Funded by Research Grant Ref. MTM2010-17389 of Ministerio de Educación, Spain (4 months).

2011 Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. Funded by FPU Doctoral Grant, Ministerio de Educación, Spain (3 months).

TEACHING EXPERIENCE

2015 Problems and tutorials of Linear Algebra, Bachelor's Degree in Mathematics, Civil Engineering Biology and Chemistry (6,5 hours a week during 1 semester). IST Lisbon, Portugal. (Teaching in Portuguese).
2014 Problems and tutorials of Linear Algebra, Bachelor's Degree in Physics and Bio-Medicine (6,5 hours a week during 1 semester). IST Lisbon, Portugal. (Teaching in Portuguese).
2012 Problems and tutorials of Linear Algebra, Bachelor's Degree in Mathematics (4 hours a week during 1 semester). UCM, Madrid, Spain.
2011 Problems and tutorials of Linear Algebra Bachelor's Degree in Mathematics (4 hours a week during 1 semester). UCM, Madrid, Spain.

PUBLICATIONS

- I. Biswas and A. Zamora, *On the Gieseker Harder-Narasimhan filtration for principal bundles*, Bull. Sci. math. (2015) http://dx.doi.org/10.1016/j.bulsci.2015.02.004.

- T. Gómez, I. Sols and A. Zamora, *The Harder-Narasimhan filtration as the image of the Kempf filtration*, To appear in the proceedings of the Congress in honor to Juan Bautista Sancho Guimerá, Salamanca 2014.

- A. Zamora, *Harder-Narasimhan filtration for rank* 2 *tensors and stable coverings*, arxiv:1306.5651v3 (2013). To appear in Proc. Indian Acad. Sci. (Math. Sci.).

- A. Zamora, *On the Harder-Narasimhan filtration of finite dimensional representations of quivers*, Geom. Dedicata **170**, Issue 1, 185-194 (2014).

- T. Gómez, I. Sols, A. Zamora, *A GIT characterization of the Harder-Narasimhan filtration*, Rev. Mat. Complut. **28**, Issue 1, 169-190 (2015).

- A. Zamora, *On the stability of vector bundles*, *Master's thesis, Universidad Complutense de Madrid, Spain,* (2009) Avalaible at e-prints UCM server

- A. Zamora, *GIT characterizations of Harder-Narasimhan filtrations,* (2013) *Ph.D. Thesis, Universidad Complutense de Madrid.*

TALKS IN CONFERENCES

2015 June, AMS-EMS-SPM International Meeting, Porto, Portugal.
2014 July, Summer School and Workshop of the Program The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles, Singapore.
2013 Congreso Jóvenes Investigadores RSME, Sevilla, Spain
2013 VBAC, SISSA, Trieste, Italy
2013 International Conference on Analytic and Algebraic Geometry, TIFR, Mumbai, India
2012 Junior Retreat, University of Illinois, Urbana-Champaign, USA
2012 VBAC, CRM, Barcelona, Spain
2009 Workshop of Young Researchers, Faculty of Mathematics, UCM, Madrid, Spain

TALKS AT SEMINARS

2015 Séminaire Géométrie, Dynamique et Topologie, Institut de Mathématiques de Marseille, France
2014 Geometry Seminar, Dipartmento di Matematica, University of Pavia, Italy
2014 Geometry and Topology Seminar, Centre for Mathematics, Faculty of Science, University of Porto, Portugal
2014 Informal Geometry Seminar (series of lectures), Department of Mathematics, IST, Lisboa, Portugal
2013 Geometry Seminar, Department of Mathematics, IST, Lisboa, Portugal
2013 Geometry Seminar, ICMAT(CSIC-UAM-UC3M-UCM), Madrid, Spain

2013 Algebraic Geometry Seminar, Department of Mathematical Sciences, University of Liverpool, United Kingdom
2011 Algebraic Geometry Seminar, Department of Algebra, Faculty of Mathematics UCM, Madrid, Spain
2011 Geometry Seminar, ICMAT(CSIC-UAM-UC3M-UCM), Madrid, Spain
2011 Ph.D. Students Seminar, Faculty of Mathematics UCM, Madrid, Spain

PARTICIPATION IN RESEARCH GRANTS

Title: Comunidade Portuguesa de Geometria Algebrica
Sponsor: FCT Portugal, Ref. RD 302
From: July 2014 to: present.

Title: Geometry and Mathematical Physics
Sponsor: FCT Portugal, (Ref. FCT EXCL/MAT-GEO/0222/2012)
From: November 2013 to: June 2014.

Title: Moduli spaces, algebraic, arithmetic and topological questions,
Sponsors: Ministerio de Educación (Spain), (Ref. MTM2010-17389)
From: 2011 to: 2014.

Title: Hodge Theory and Moduli of Bundles (Ref. MTM2007-63582),
Sponsors: Ministerio de Educación y Ciencia, Spain
From: 2007 to: 2010.

CONFERENCES ATTENDED

2015 February, Geometry from Stability Conditions, Warwick, UK.
2014 September, VBAC Conference, Berlin, Germany.
2014 July, Summer School and Workshop of the Program The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles, Singapore.
2014 May, IV International School on Geometry and Physics, The Geometry and Physics of Moduli Spaces, Miraflores de la Sierra, Madrid, Spain.
2014 March, Minicourses on Stability, Coimbra, Portugal.
2013 Congreso Jóvenes Investigadores RSME, Sevilla, Spain
2013 June, VBAC Conference, SISSA, Trieste, Italia.
2013 March, International Conference on Analytic and Algebraic Geometry, TIFR, Mumbai, India.
2013 March, Nigel Hitchin LAB: Workshop-Retreat: Topology of moduli spaces of representations, Miraflores, Madrid, Spain.
2012 September, School on conformal blocks, ICMAT(CSIC-UAM-UC3M-UCM), Madrid, Spain.
2012 September, Indo-Spanish Conference on Geometry and Analysis, ICMAT(CSIC-UAM-UC3M-UCM), Madrid, Spain.
2012 July-August, Junior and Senior Retreats, University of Illinois, Urbana-Champaign, USA.
2012 June, VBAC Conference 2012, CRM, Barcelona, Spain
2011 June, VBAC Conference 2011, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.
2011 March, Workshop on Higgs bundles and Surface Representation Groups, Oxford University, United Kingdom.

2011 January, School on Moduli Spaces, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.
2010 July, Summer School on the Hitchin Fibration, Hausdorff Center for Mathematics, Bonn, Germany.
2010 March, Second International School on Geometry and Physics. Geometric Langlands and Gauge Theory, CRM, Barcelona, Spain.
2009 December, Workshop on Algebraic Geometry, Faculty of Mathematics UCM, Madrid, Spain.
2009 November, Workshop CSIC-IISc, Indian Institute of Science, Bangalore, India.
2009 September, GESTA, Centro de Ciencias "Pedro Pascual", Benasque, Huesca, Spain.

AWARDS AND HONORS

2003 National High School Award, Spain
2003 Extraordinary High School Award in Castilla-la Mancha, Spain
2003 Best score (9,78/10) in Undergraduate Admission Test in Castilla-la Mancha, Spain
2003 High school diploma with honors
2001 Bronze medal in XXXIX Spanish Mathematical Olympiad
2001 First place in II Mathematical Olympiad of Castilla-la Mancha
2001 First place in XII Mathematical Olympiad of Albacete

ORGANIZATION OF SCIENTIFIC EVENTS

IV Workshop of Young Researchers, 22-24 September 2010, Faculty of Mathematics UCM, Madrid, Spain,

LANGUAGES

Spanish, English, Portuguese.

REVIEW

Reviewer for MathSciNet and Zentralblatt MATH

REFERENCES

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CSU Channel Islands
Pilot Conversion Form
Program to be Converted:
Master of Science in Mathematics
October 20, 2010

CSU Degree Program Proposal Template

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1. **Program Type**
   (Please retain any from the list below that apply—then delete the others)

   √ Pilot Conversion

2. **CPEC COVER PAGE (required for graduate programs only)**

   The California Post-Secondary Education Commission now requires for each graduate program proposed, a table of contents cover page that lists the following review criteria and that identifies the page numbers on which those criteria are addressed in the proposal. The criteria include:

   - **Student demand………………………………………………………….7**
     This can be demonstrated with surveys of student intention to enroll in the program. Include current and projected enrollments of related existing programs at the proposing campus or feeder institutions.

   - **Societal Needs……………………………………………………………13**
     The proposal should establish that there will be sufficient employment opportunities for graduates of the proposed program. Workforce demand projections can be helpful in establishing the balance between graduates and employment opportunities. Letters from regional employers are helpful, as well. Workforce data are available at:
     http://www.calstate.edu/app/workforce_data.shtml

   - **Appropriateness to Institutional and Segmental Mission………………3,4**
     Describe how the proposed degree program fits with the campus, school/college, and departmental missions.

   - **Number of Existing and Proposed Programs in the Field……………..13**
     Demonstrate how the proposed program differs from or is similar to existing programs in the state.

   - **Total Costs for the Program…………………………………………..16, 19**
     Are there sufficient funds available to support the resources that are required in order to initiate and maintain the program, including: the number of new faculty required; equipment; library resources; and classroom, office, and laboratory facilities. Identify the source of the funds required to support the program, both initially and in the long run.

   - **Maintenance and Improvement of Quality……………………………7**
     Submit formal assessment plans that address program goals and student learning outcomes. Goals should be measurable; plans should be manageable, and data should be meaningful.

Goals should be related to institutional and program mission, and to the curriculum. See the CSU assessment site for further information:
http://www.calstate.edu/acadaff/sloa/index.shtml

- **Advancement of Knowledge ……………………………………………13**
  Describe how the program will contribute to the growth and development of intellectual and creative scholarship.

3.   Program Identification

a. Campus: CSU Channel Islands

b. Full and exact degree designation and title (e.g. Master of Science in Genetic Counseling, Bachelor of Arts with a Major in History).

Master of Science in Mathematics

c. **Total number of Units Required.** A justification is required later in the proposal for any proposed undergraduate program requiring more than 120 semester units, 180 quarter units.

32 Semester Units

d. Date the Board of Trustees approved adding this program projection to the campus Academic Plan.

March 2005

e. Term and academic year of intended implementation (e.g. Fall 2007).

Fall 2005

f. Name of the department(s), division, or other unit of the campus that would offer the proposed degree major program. Please identify the unit that will have primary responsibility.

Academic Affairs/Extended University/Mathematics

g. Name, title, and rank of the individual(s) primarily responsible for drafting the proposed degree major program.

Ivona Grzegorczyk, Professor of Mathematics and Chair
Jorge Garcia, Associate Professor of Mathematics
Jesse Elliott, Associate Professor of Mathematics
Peter Smith, Professor of Computer Science
William Wolfe, Professor of Computer Science and Chair
Geoff Dougherty, Professor of Physics

h. Statement from the appropriate campus administrative authority that the addition of this program supports the campus mission and will not impede the successful operation and growth of existing academic programs. **(CPEC "Appropriateness to Institutional and Segmental Mission")**

See attachment A – Provost Statement of Support

i.   Any other campus approval documents that may apply (e.g. curriculum committee approvals).

See attachment A – MS Math Long Form sigs (approval dates included)

j.   Please specify whether this proposed program is subject to WASC Substantive Change review.

The MS in Mathematics is not subject to WASC Substantive Change review. CSU Channel Islands received its initial WASC accreditation in July 2007, subsequent to the implementation of the MS in Mathematics and thereby approving this program and its other initial undergraduate and graduate degrees.

k.   **Optional: Proposed Classification of Instructional Programs (CIP) Code and CSU Degree Program Code**
Campuses are invited to suggest one CSU degree program code and one corresponding CIP code. If an appropriate CSU code does not appear on the systemwide list at: http://www.calstate.edu/app/documents/HEGIS-CIP2000_102406.xls, you can search CIP 2000 at http://nces.ed.gov/pubs2002/cip2000/ to identify the code that best matches the proposed degree program. The Classification of Instructional Programs (CIP) is a National Center for Education Statistics (NCES) publication that provides a numerical classification and standard terminology for secondary and postsecondary instructional programs. The CSU degree program code (based on old HEGIS codes) and CIP code will be assigned when the program is approved by the Chancellor.

Program Code: 17011 as assigned by the Chancellor's Office October 21, 2006

4.   Program Overview and Rationale

a.   Rationale, including a brief description of the program, its purpose and strengths, fit with institutional mission, and a justification for offering the program at this time. The rationale may explain the relationship among the program philosophy, design, target population, and any distinctive pedagogical methods. **(CPEC "Appropriateness to Institutional and Segmental Mission")**

With the rapid development of high-tech and computational sciences in the entire world, the need for graduate programs in computational sciences is acute. There is a global shortage of people with advanced mathematical, computational, and computer skills throughout the industry, especially in the greater Los Angeles area, and Ventura county. The MS program in Mathematics is broad in scope: the applications include Bioinformatics, Actuarial Sciences, Cryptography, Security, Image Recognition, Artificial Intelligence, and Mathematics Education.

The Program is of interest to students with undergraduate degrees in mathematical sciences, computer science, engineering, and others with strong computational backgrounds. The program is and will continue to be of service to graduates holding computational degrees, especially for professionals working in local high-tech and computational industries, as well

as military personnel. We have letters from local industries in support of the program (see Appendix C).

MS Mathematics students and graduates have found employment in local high-tech, information systems, and computational industries; business, finance, educational institutions, and the military. We expect future graduates to continue to find employment in these fields as well as in local and federal government. Some students have used the program as a jumping off point for Ph.D. study in the mathematical sciences; current students have similar plans.

The curriculum contains up-to-date technical, theoretical and intellectual achievements in the field of Mathematics. It includes modern computer applications in developing fields such as statistical analysis, artificial intelligence, pattern recognition, computer graphics and mathematics education. This degree program is a result of cooperation between Mathematics and Computer Science faculty. Many of the courses are shared with the MS in Computer Science program; the curriculum for those focusing on applications is also enriched through offerings taught by Physics faculty. Both Computer Science and Physics faculty serve as thesis/ project advisors on demand. The requirement of a graduate thesis or project ensures that each graduate has demonstrated attainment of expertise in a particular area or application of mathematics.

b. Proposed catalog description, including program description, degree requirements, and admission requirements. For master's degrees, please also include catalog copy describing the culminating experience requirement(s).

Our MS in Mathematics program is interdisciplinary and innovative in nature, and offers a flexible schedule with highly qualified faculty. It is designed to address the global need for people with advanced mathematical, computational, and computer skills throughout the industry, high-tech, and educational systems. Students will acquire a strong background in mathematics, and computer software, as well as the skills to conduct independent applied research or develop independent projects. The program will stress interdisciplinary applications, for example in Actuarial Sciences, Cryptography, Security, Image Recognition, Artificial Intelligence, and Mathematics Education, and will give students a valuable opportunity to gain teaching experience on the university level. Students' specializations depend on the final project/ thesis and the electives chosen under the supervision a Mathematics advisor. An individual study plan can be designed to meet entry requirements for Ph.D. programs in Mathematical Sciences.

Admission Requirements
1. Application. Apply to both the University and the Mathematics Program. Forms are available at the Extended Education Office and on-line at http://math.csuci.edu/.
2. Recommendation. At least two letters of recommendations from academia or professional supervisors.
3. Subject Matter Preparation. Applicants are expected to hold BS degree in mathematics. However students with other degrees (or equivalent coursework) maybe considered and admitted conditionally (subject to completing relevant undergraduate mathematics courses).
4. GPA of 3.0 in Mathematical Sciences. If applicant does not have the required GPA, conditional admission maybe available on a limited bases.
5. GRE (general and mathematics) scores are recommended, but not required.

Requirements for the Master of Science in Mathematics – (32 units)
Core Courses – 11 units
Choose three courses from the following list: At least two courses must be in Mathematics:

Core Courses – 11 units

MATH	510	Probabilistic Methods and Measure Theory	3
MATH	511	Functional Analysis	3
MATH	513	Advanced Algebra	3
COMP	510	Algorithms	3
COMP	569	Artificial Intelligence	3
PHYS	510	Advanced Image Analysis Techniques	3

And required two units of:

MATH	599	Graduate Seminar	1

Masters Thesis or Masters Project Emphasis – 6 units

MATH	597	Master Thesis	3
or			
MATH	598	Master Project	3

Graduate Writing Assessment Requirement
Writing proficiency prior to the awarding of the degree is demonstrated by successful completion of at least two credits of MATH 597 (Masters Thesis) or MATH 598 (Masters Project) with a grade of B or higher.

Electives – 15 units*
Choose five electives from the following list (at least three courses in mathematics):

MATH	555	Actuarial Sciences	3
MATH	565	Research in Mathematics Education	3
MATH	570	Combinatorics	3
MATH	581	Mathematical Methods in Artificial Intelligence (COMP)	3
MATH	582	Number Theory and Cryptography	3
MATH	584	Algebraic Geometry and Coding Theory	3
MATH	587	Markov Chains and Markov Processes	3
MATH	588	Stochastic Analysis	3
PHYS	546	Pattern Recognition	3
COMP	520	Advanced Database Systems	3
COMP	524	Security	3
COMP	529	Network Computing	3
COMP	549	Human-Computer Interaction	3
COMP	550	Advanced Software Engineering	3
COMP	569	Artificial Intelligence	3
COMP	571	Biologically Inspired Computing	3
COMP	572	Neural Networks	3
COMP	575	Multi-Agent Systems	3
COMP	578	Data Mining	3

*other graduate or junior/senior courses from related disciplines may be included with advisor's approval.

5. Curriculum

a. Goals for the (1) program and (2) student learning outcomes. Program goals are very broad statements about what the program is intended to achieve, including what kinds of graduates will be produced. Student learning outcomes are more specific statements that are related to

the program goals but that more narrowly identify what students will know and be able to do upon successful completion of the program.

Program Goals:
1. Provide students with the opportunity to earn a Master degree in Computer Science or Mathematics from the California State University.
2. Prepare students for employment in a variety of highly sophisticated and complex high-tech and bio-tech industries, businesses, education systems, military and local and federal government
3. Prepare students for further study in graduate or professional schools.
4. Equip students with the depth, flexibility and mathematical skills that apply to variety of fields and offer various career opportunities, including consulting, scientific and technical positions in business and industry, research and development, national and industrial security or teaching positions.
5. Offer all CSUCI students the opportunity to broaden their knowledge and learn mathematical skills and computer technology that can be applied to various professional and personal situations.

Student Learning Objectives
Students graduating from the Mathematics program will be able to:
1. Demonstrate critical thinking, problem solving, and advanced mathematical skills by identifying, evaluating, analyzing, synthesizing and presenting fundamental and advanced mathematical and computer science issues and their applications.
2. Demonstrate the knowledge of current mathematical theories and broad technology use in industry, including a working knowledge of software development techniques in an industrial setting.
3. Be knowledgeable of emerging new technologies and industrial practices connected to the computer industry and demonstrate understanding of computing technologies in society.
4. Demonstrate cooperation skills by working effectively with others in interdisciplinary group settings – both inside and outside the classroom.
5. Demonstrate independent working and thinking skills by completing a graduate project and/or master thesis.
6. Demonstrate a sense of exploration that enables them to pursue rewarding careers in high-tech industries, bio-tech industries, businesses, education systems, military and local and federal government.
7. Demonstrate flexibility, transferability and adaptability of their life-learning skills that are so important in the quickly changing national and international economies.

b. Plans for assessing program goals and student learning outcomes. Some planners find it helpful to develop matrices in which student learning outcomes and required courses are mapped, indicating where content related to the learning outcomes is introduced, reinforced, and practiced at an advanced level in required courses. **(CPEC "Maintenance and Improvement of Quality")**

As the matrix below indicates, when and in which aspects of the program students receive introduction to, reinforcement of, and the opportunity to practice each learning outcome at an advanced level depend heavily on individual student's course selection. Nonetheless, by the time students have completed six credits of Math 597 (Masters Thesis) or Math 598 (Masters Project), along with a seminar presentation and defense of their theses/ projects, they have demonstrated mastery of learning outcomes 1, 5, 6, and 7 at an advanced level. Learning

7

outcome 4 is typically achieved through activities surrounding the coursework. Learning outcomes 3 and 4 do not apply to all students; they do apply to those seeking positions post-degree in industry. These students are advised to take courses in which they are exposed to, practice, and master these outcomes; they are also encouraged to pursue thesis/ project experiences that allow them to further develop their expertise in mathematical technology and computing.

Student Learning Outcomes vis-à-vis Program Components

	Core Courses	Seminar	Electives	Masters Thesis/ Project
SLO 1	I, R, A (d)	I	I, R, A (d)	R, A
SLO 2	I (d), R (d), A (d)	I	I (d), R (d), A (d)	R (d), A (d)
SLO 3	I (d), R (d), A (d)		I (d), R (d), A (d)	R (d), A (d)
SLO 4	I, R, A (d)	I	I, R, A (d)	R (d), A (d)
SLO 5	I (d)		I (d)	R, A
SLO 6	I (d), R (d), A (d)	I, R	I (d), R (d), A (d)	R, A
SLO 7	I (d), R (d), A (d)		I (d), R (d), A (d)	R, A

Codes: I – introduced; R – reinforced; A – practiced at advanced level; (d) – depending on choice of classes within category

c. Total number of units required for the major; total number of units required to graduate.

   32 Semester Units are required for the MS in Mathematics.

d. Include a justification for any baccalaureate program that requires more than 120-semester units or 180-quarter units. Not Applicable.

e. If any formal options, concentrations, or special emphases are planned under the proposed major, identify and explain fully. Optional: You may propose a CSU degree program code and CIP code for each concentration that you would like to report separately from the major program, if the option is approximately equivalent to a degree currently listed on the CSU application-booklet degree program table. If you do not find an appropriate CSU degree program code at: http://www.calstate.edu/app/documents/HEGIS-CIP2000_102406.xls , you can search CIP 2000 at http://nces.ed.gov/pubs2002/cip2000/ to help identify the code that best matches the proposed curriculum. Not Applicable.

f. A list of all courses *required* for the major, specifying catalog number, *title*, units of credit, and prerequisites or co-requisites (thereby ensuring that there are no "hidden" prerequisites that would drive the total units required to graduate beyond the total reported in 4c above).

Requirements for the Master of Science in Mathematics – (32 units)
Core Courses – 11 units
Choose three courses from the following list: At least two courses must be in Mathematics:
Core Courses – 11 units

MATH.........510	Probabilistic Methods and Measure Theory	3
MATH.........511	Functional Analysis	3
MATH.........513	Advanced Algebra	3
COMP 510	Algorithms	3
COMP 569	Artificial Intelligence	3
PHYS...........510	Advanced Image Analysis Techniques	3

And required two units of:

MATH.........599   Graduate Seminar   1

Masters Thesis or Masters Project Emphasis – 6 units
        MATH.........597   Master Thesis   3
          or
        MATH.........598   Master Project   3

MATH 510 PROBABILISTIC METHODS AND MEASURE THEORY (3)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Introduction to probabilistic methods. Topic include: sigma algebras, measures, integrals,
Lebesgue measure, main convergence results and the change of variable results for integrals.
Probabilistic methods in computational sciences are studied.

MATH 511 FUNCTIONAL ANALYSIS (3)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Topics include: metric spaces, function spaces, normed vector spaces, linear operators.
Banach spaces, Hilbert space, Spectral theory, and fundamental theorems in functional
analysis. Applications in various fields including computer science, bioinformatics, and
statistical analysis.

MATH 513 ADVANCED ALGEBRA (3)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Topics include: Techniques of GroupTheory, Rings Fields, Modules, Galois Theory,
Algebraic Number Theory, Algebraic Geometry, Techniques of Linear Algebra,
Noncommutative Algebra, and Homological Algebra.

MATH 599 GRADUATE SEMINAR (1)
Three hours lecture per week
Prerequisite: Graduate standing in MS Math or MS Computer Science, or Consent of
Instructor
Oral presentations of current work in mathematics by local and outside speakers; student
thesis and project presentations. Repeatable up to 2 units.

COMP 510 ALGORITHMS (3)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Design strategies for algorithms and data structures. Theoretical limits to space and time
requirements. Time/space trade-offs. Categories of problems and algorithms. Applications to
business, bioinformatics, engineering, telecommunications and other disciplines. Open
problems in the field.

COMP 569 ARTIFICIAL INTELLIGENCE (3)
Three hours of lecture in the lab per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
The course covers the many aspects of how human intelligence might be encoded in
computer programs and mechanisms such as robots. This includes topics in Natural Language
Processing, Computer Vision, Expert Systems, and Automated Problem Solving.

PHYS 510 ADVANCED IMAGE ANALYSIS TECHNIQUES (3)

Three hours of lecture in the lab per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Image processing course in the fundamentals of 2-D digital signal processing with emphasis in image processing techniques, image filtering design and applications. Programming exercises in Matlab (or Octave) will be used to implement the various processes, and their performance on synthetic and real images will be studied. Applications in medicine, robotics, consumer electronics and communications.

MATH 597 MASTER THESIS (1-6)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Supervised research in mathematical sciences or applications. Required to present research at Graduate Seminar.

MATH 598 MASTER PROJECT (1-6)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Supervised industrial, educational or scientific project involving use of advanced mathematical methods. Required to present projects at the Graduate Seminar.

MATH 599 GRADUATE SEMINAR (1)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Oral presentations of current advancements in the field, reports on students' research, master thesis, and projects. Repeatable.

Graduate Writing Assessment Requirement
Writing proficiency prior to the awarding of the degree is demonstrated by successful completion of at least two credits of MATH 597 (Masters Thesis) or MATH 598 (Masters Project) with a grade of B or higher.

g. List of *elective* courses that can be used to satisfy requirements for the major, specifying catalog number, title, units of credit, and prerequisites or co-requisites. Include proposed catalog descriptions of all new courses. For graduate program proposals, identify whether each course is a graduate or undergraduate offering.

Note: All courses are graduate level courses.

Electives – 15 units*
Choose five electives from the following list (at least three courses in mathematics):

MATH 555	Actuarial Sciences	3
MATH 565	Research in Mathematics Education	3
MATH 570	Combinatorics	3
MATH 581	Mathematical Methods in Artificial Intelligence (COMP)	3
MATH 582	Number Theory and Cryptography	3
MATH 584	Algebraic Geometry and Coding Theory	3
MATH 587	Markov Chains and Markov Processes	3
MATH 588	Stochastic Analysis	3
MATH 590	Special Topics	3
PHYS 546	Pattern Recognition	3

COMP...520	Advanced Database Systems	3
COMP...524	Security	3
COMP...529	Network Computing	3
COMP...549	Human-Computer Interaction	3
COMP...550	Advanced Software Engineering	3
COMP...569	Artificial Intelligence	3
COMP...571	Biologically Inspired Computing	3
COMP...572	Neural Networks	3
COMP...575	Multi-Agent Systems	3
COMP...578	Data Mining	3

*other graduate or junior/senior courses from related disciplines may be included with advisor's approval.

Note: With regard to Sections 4f and 4g, a proposed program should take advantage of courses already offered in other departments when subject matter would have considerable overlapping content.

h. List of any new courses that are: (1) needed to initiate the program and (2) needed during the first two years after implementation. Only include proposed catalog descriptions for new courses. For graduate program proposals, identify whether each course is a graduate-level or undergraduate-level offering. Not Applicable.

i. Attach a proposed course-offering plan for the first three years of program implementation, indicating, where possible, likely faculty teaching assignments. Not Applicable.

j. For master's degree proposals, include evidence that program requirements conform to the minimum requirements for the culminating experience, as specified in Section 40510 of Title 5 of the California Code of Regulations.

MS Mathematics satisfies the culminating experience by requiring students to integrate MATH 597 (Master Thesis) and MATH 598 (Master Project) for 6 units.

k. Admission criteria, including prerequisite coursework.

Admission Requirements
1. Application. Apply to both the University and the Mathematics Program. Forms are available at the Extended Education Office and on-line at http://math.csuci.edu/.
2. Recommendation. At least two letters of recommendations from academia or professional supervisors.
3. Subject Matter Preparation. Applicants are expected to hold BS degree in mathematics. However students with other degrees (or equivalent coursework) maybe considered and admitted conditionally (subject to completing relevant undergraduate mathematics courses).
4. GPA of 3.0 in Mathematical Sciences. If applicant does not have the required GPA, conditional admission maybe available on a limited bases.
5. GRE (general and mathematics) scores are recommended, but not required.

l. Criteria for student continuation in the program.

Classification Status

Conditionally Classified
To qualify for admission in conditionally classified graduate standing, a student must:
1. Hold an acceptable baccalaureate degree from an accredited institution.
2. Have attained a grade-point average (GPA) of at least 2.5 (4.0=A)in the last 60 semester units attempted
3. Have been in good standing at the last institution attended
4. Be accepted into a graduate degree curriculum on a conditional basis, subject to the requirement that any deficiencies must be remedied by additional preparation.
5. For students entering the Master of Arts in Education: Educational Leadership Program, if the student is missing one or more of the following requirements, CBEST, advanced technology or special education course.

Classified
A student who meets the minimum requirements for admission as a graduate student, as specified in the preceding paragraph, may be admitted as a fully classified graduate student pursuing an authorized degree curriculum if the appropriate program authorities determine the he or she satisfactorily meets the professional, personal, scholastic, or other standards for admission to the graduate degree curriculum, including qualifying examinations that the appropriate program authorities may prescribe. Only those applicants who show promise of success will be admitted to the graduate curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence shall be eligible to proceed in such curricula.

Advancement to Candidacy
Advancement to candidacy recognizes that the student has demonstrated the ability to operate at and sustain a level of scholarly competence that is satisfactory for successful completion of the degree requirements. The student is then cleared for the final stages of the program, which, in addition to any remaining coursework, may include the thesis, project, or examination. The student may request advancement to candidacy only after a formal program of study (except a required final or 'capstone' course) has been submitted, the graduation writing requirement has been satisfied, and sufficient coursework has been completed to allow the program to make a judgment about the student's potential to complete the program.

m. For undergraduate programs, planned provisions for articulation of the proposed major with community college programs.   Not Applicable.

n. If there is a Lower-Division Transfer Pattern (LDTP) for this major, indicate the relationship between the LDTP and the requirements presented in this proposal. Information on LDTP is available at: http://www.calstate.edu/AcadAff/ldtp.shtml Not Applicable.

o. Advising "roadmaps" that have been developed for the major. .

Please see Appendix D for Sample Two-Year Plans (Roadmaps) and the Course Prerequisites Flow Chart

p. Provision for meeting accreditation requirements, if applicable, and anticipated date of accreditation request (including the WASC Substantive Change process).

Accreditation Note:

Master's degree program proposals
If subject to accreditation, establishment of a master's degree program should be preceded by national professional accreditation of the corresponding bachelor's degree major program.

Fast-track proposals
Fast-track proposals cannot be subject to specialized accreditation by an agency that is a member of the Association of Specialized and Professional Accreditors unless the proposed program is already offered as an authorized option or concentration that is accredited by an appropriate specialized accrediting agency.

The MS in Mathematics is not subject to WASC Substantive Change review. CSU Channel Islands received its initial WASC accreditation in July 2007, subsequent to the implementation of the MS in Mathematics and thereby approving this program and its other initial undergraduate and graduate degrees.

6.   Need for the Proposed Degree Major Program
(CPEC "Societal Need," "Number of Existing Programs in the Field," and "Advancement of the Field")

a.   List of other California State University campuses currently offering or projecting the proposed degree major program; list of neighboring institutions, public and private, currently offering the proposed degree major program.

Many other CSU campuses offer a Master of Science in Mathematics. However, the three nearby private institutions (California Lutheran University, Pepperdine University, and Westmont College) do not offer these degrees. The nearest MS Mathematics Programs to CSU Channel Islands are those of CSU Northridge and UC Santa Barbara, each at a distance that makes commuting to these programs a burden for students from our local area.

b.   Differences between the proposed program and programs listed in Section 5a above.

The CSU Channel Islands program will provide an opportunity to earn a MS in Mathematics degree to students in the local service area – and offer all students access to highly desired high-tech and educational positions in a unique program that stresses an interdisciplinary learning approach. Our program features a high degree of interaction with qualified faculty. All students must complete a Master Thesis or Master Project to obtain the degree.

c.   List of other curricula currently offered by the campus that are closely related to the proposed program.

Master in Computer Science Program: all MS MATH courses are electives for the MS in Computer Science degree; all MS COMP classes are electives for the MS in Mathematics degree.

d.   Community participation, if any, in the planning process. This may include prospective employers of graduates.

Individuals in positions of leadership at several local high-tech companies were consulted during the planning process for this program. Please see their letters of support in Appendix C.

e.   Applicable workforce demand projections and other relevant data.

There is a wealth of evidence of the ongoing and growing need for individuals with the training represented by an MS degree in Mathematics in high-tech industry and business. The

following figures and conclusions are from the recent study "Help Wanted: Projections of Jobs and Education Requirements through 2018," a June 2010 publication of the Georgetown University Center on Education and the Workforce (CEW).

"Computer and Mathematical Science occupations are the largest category in the STEM cluster. They accounted for 3.4 million jobs in 2008, or 2.3 percent of all jobs, and will grow to 4.2 million jobs in 2018, or 2.6 percent of the total." Educational levels for these occupations are currently concentrated in Bachelor's and Master's degrees (69 percent); CEW predicts this percentage will increase to 71 percent by 2018. They further predict that 1.5 million positions in this sector will be available by 2018: 798,000 new jobs and 707,000 replacement openings. These figures represent a relatively greater demand than for other occupations for highly skilled individuals to replace retirees. In particular, the number of Mathematical Sciences occupations is expected to grow roughly 20% in the next decade.

f. If the program was proposed to meet society's need for the advancement of knowledge, please specify the need and explain how the program meets that need.

Note: Data Sources for Demonstrating Evidence of Need

APP Resources Web http://www.calstate.edu/app/resources.shtml

US Department of Labor, Bureau of Labor Statistics

California Labor Market Information

Labor Forecast

7.   Student Demand (CPEC "Student Demand")

g. Compelling evidence of student interest in enrolling in the proposed program. Types of evidence vary and may include national, statewide, and professional employment forecasts and surveys; petitions; lists of related associate degree programs at feeder community colleges; reports from community college transfer centers; and enrollments from feeder baccalaureate programs, for example.

The table below is provided by Extended University; see below for discussion.

Semester	# enrolled in degree program	# of MS Math degrees posted
Fall 04	0	
Spring 05	4	
Summer 05	0	
Fall 05	9	
Spring 06	11	
Summer 06	5	
Fall 06	9	
Spring 07	11	
Summer 07	3	2
Fall 07	6	
Spring 08	7	
Summer 08	2	2
Fall 08	12	
Spring 09	11	
Summer 09	3	

Fall 09	16	3
Spring 10	18	degrees still posting when data provided

The chart below indicates the number of student credits taught within the MS Mathematics Program each academic year since the program was initiated. Please note that data provided by Extended University reflects only enrollment of students accepted to the degree program; other area professionals enroll in MS Mathematics courses without intent to pursue the degree. The course enrollment figures thus provide a more accurate picture of the demand for these courses. Enrollment figures by course and by semester are provided in Appendix D.
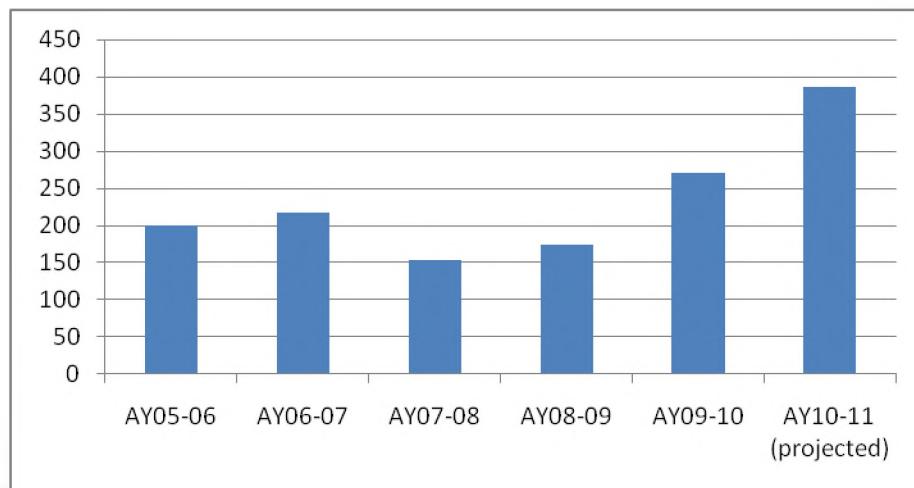
We have been tracking individual students since the MS Mathematics program was initiated in Fall, 2005. Of the 46 students who were accepted and enrolled, 12 have completed the degree, 4 have left to enroll in Ph.D. programs (without completing the MS degree), 24 are still actively pursuing the MS degree, 4 have definitively dropped out of the program, and 4 are inactive. (Individual data comprising these figures may be found in Appendix D.)

h. Issues of access considered when planning this program.

i. For master's degree proposals, the number of declared undergraduate majors and the degree production over the preceding three years for the corresponding baccalaureate program, if there is one.

Number of declared undergraduate majors in Mathematics:

2007	2008	2009
52	52	45

j. Professional uses of the proposed degree program.

The MS Mathematics Program prepares students for a variety of high-tech industrial positions or advanced mathematics education positions. The degree also prepares students for further graduate education in mathematical and computational fields.

k. The expected number of majors in the year of initiation and three years and five years thereafter. The expected number of graduates in the year of initiation, and three years and five years thereafter.

See above (g.) for historical figures. A growth rate of 10% per year is expected once enrollment growth at CI is permitted to resume.

8. Existing Support Resources for the Proposed Degree Major Program
(CPEC "Total Costs of the Program")

Note: Sections 7 and 8 should be prepared in consultation with the campus administrators responsible for faculty staffing and instructional facilities allocation and planning. A statement from the responsible administrator(s) should be attached to the proposal assuring that such consultation has taken place.

Extended University is mandated to operate self-supported programs maintained through student fees and other non-State funds. Per EO1000 and a formalized University MOU, Extended University fully reimburses the State for all expenses incurred in the operations of special session degree programs. As such, this program is estimated to have sufficient funds available through student fees to maintain and grow the program in the future (statement from Dean of Extended University attached).

a. Faculty who would teach in the program, indicating rank, appointment status, highest degree earned, date and field of highest degree, professional experience, and affiliations with other campus programs. For master's degrees, include faculty publications or curriculum vitae.

Note: For all proposed graduate degree programs, a minimum of five full-time faculty members with the appropriate terminal degree should be on the program staff. (Code Memo EP&R 85-20)

Ivona Grzegorczyk
Professor of Mathematics
PhD in Mathematics, UC Berkeley, 1990
Mathematics faculty at CSU Channel Islands since 2001 (Founding Faculty)
Experience in the areas of algebraic geometry, moduli problems, applied mathematics, mathematics education.
Selected publications:
1. On Newstead's Conjecture on Vector Bundles on Algebraic Curves, Mathematichen Annallen 300, 521-541(1994).
2. Mathematics and Fine Arts, Kendall/Hunt publishing Co., (2000).
3. Brill-Noether Theory for Stable Vector Bundles, with M. Teixidor i Bigas, in Moduli Spaces and Vector Bundles, Cambridge University Press, 2008, arXiv: 0801.4740.

Cynthia Wyels
Professor of Mathematics
PhD in Mathematics, UC Santa Barbara, 1994
Mathematics faculty at CSU Channel Islands since 2005
Experience in the areas of combinatorics, graph theory, mentoring undergraduate and masters-level research.
Selected publications (undergraduate co-authors identified with asterisk):
1. Radio numbers of some generalized prism graphs (with P. Martinez*, J. Ortiz*, M. Tomova), to appear in Discussiones Mathematicae Graph Theory.
4. Pebbling graph products (with M. Tomova), to appear in Ars Combinatoria.

5. The N-Queens problem on a symmetric Toeplitz matrix (with M. Tomova, Z. Szaniszlo), Discrete Mathematics 309 (2009), 969 – 974.

Geoffrey Dougherty
Professor of Physics
Ph.D. in Biophysics, University of Keele, 1979
Medical Imaging/Physics faculty at CSU Channel Islands since 2002
Experience in medical imaging, image analysis, and bioengineering.
Selected publications:
1. Textbook – "Digital Image Processing for Medical Applications", Cambridge University Press, 2009. ISBN-13: 9780521860857. (http://www.cambridge.org/us/catalogue/catalogue.asp?isbn=9780521860857
2. Dougherty, G and Henebry, G. Lacunarity analysis of spatial pattern in CT images of vertebral bone for assessing osteoporosis. **Med. Eng. Phys., 2002, 24**, 129-138.
3. Dougherty, G. and Kawaf Z. The point spread function revisited: image restoration using 2-D convolution. **Radiography, 2001, 7**, 255-262.

Jesse Elliot
Associate Professor of Mathematics
PhD in Mathematics, UC Berkeley, 2003
Mathematics faculty at CSU Channel Islands since 2003
Experience in commutative algebra and number theory.
Selected publications:
1. Functorial properties of star operations, Comm. Alg. 38 (5) (2010) 1466–1490.
2. Some new approaches to integer-valued polynomial rings, in Commutative Algebra and its Applications: Proceedings of the Fifth Interational Fez Conference on Commutative Algebra and Applications, Eds. Fontana, Kabbaj, Olberding, and Swanson, de Gruyter, NewYork, 2009.
3. Ring structures on groups of arithmetic functions, J. Number Theory 128 (2008) 709–730.

Jorge Garcia
Associate Professor of Mathematics
PhD in Mathematics, U-W Madison, 2002
Mathematics faculty at CSU Channel Islands since 2003
Experience in Stochastic Processes, Large Deviations, Stochastic Integrals, Probability, Markov Processes and Measure Theory.
Selected publications:
1. An Extension of the Contraction Principle, Journal of Theoretical Probability, April, 2004
2. A Large Deviation Principle for Stochastic Integrals, Journal of Theoretical Probability December, 2007.
3. Limits of Stochastic Integrals, Advances and Applications in Statistics, Volume 10, Issue 2 (December 2008)

Kathryn Leonard
Assistant Professor of Mathematics
Ph.D. in Mathematics, Brown University, 2004.
Mathematics faculty at CSU Channel Islands since 2006
Experience in image recognition, shape space, shape modeling, texture analysis.
Selected publications:
1. Efficient representation in spaces of plane curves, Rend. Linc. Mat. e Appl., **20**(1), 2009, 69-93.
2. Efficient shape modeling: epsilon-entropy, adaptive coding, and Blum's medial axis versus the boundary curve, Int. J. Comp. Vis., **74**, 2007, 183 - 199.
3. An efficiency criterion for 2D shape model selection, IEEE CVPR Proc., **1**, 2006, 1289 - 1296.

Geoffrey Buhl
Assistant Professor of Mathematics
Ph.D. in Mathematics, University of California Santa Cruz, 2003
Mathematics faculty at CSU Channel Islands since 2006

Experience in string theory, vertex operator algebras, Möbius vertex algebras, interdisciplinary training in biology and mathematics.
Selected publications:
1. Ordered spanning set for vertex operator algebras, accepted by Moonshine - the First Quarter Century and Beyond conference proceedings.
2. Spanning sets for Möbius vertex algebras satisfying arbitrary difference conditions (with G. Karaali), Journal of Algebra, Vol. 320, Issue 8, 2008.
3. Ordered spanning set for quasimodules for Möbius vertex algebras, Journal of Algebra, Vol. 320, No. 5, 2008.

James Sayre
Visiting Professor in Mathematics
PhD in Biostatistics, University of California, Los Angeles, 1977
Mathematics faculty at CSU Channel Islands since 2006
Experience in statistical analysis, biostatistics, epidemiology, research design and analysis.
Selected publications:
1. Measurement of Retinal Vascular Tortuosity and Its Application to Retinal Pathologies (with Dougherty and Johnson), Medical and Biological Engineering and Computing, 2010.
2. Analysis of Covariance Using an Artificial Neural Network (with Hill and Forsythe), 1995.

Vladimir Makarov
Lecturer in Mathematics
Ph.D. in Computational Biology, Baylor College of Medicine, 1998
Mathematics faculty at CSU Channel Islands since 2006
Experience in bioinformatics, massively parallel computing, computational biology, quantitative analysis.
Selected publications:
1. Peristat: a computer-based perimetry self-test for cost-effective population screening of glaucoma (with Tanchulev, Pham and Minkler), Curr Eye Res, Vol 1, 2005.
2. Computer programs for eukaryotic gene prediction, Briefings in Bioinformatics, Vol 3, 2002.
3. Solvation and Hydration of Proteins and Nucleic Acids: a theoretical vies of simulation and experiment (with Pettitt and Feig), Accounts of Chemical Research, Vol 35, 2002.

Roger Roybal
Lecturer in Mathematics
Ph.D. in Mathematics, University of California Santa Barbara, 2005
Mathematics faculty at CSU Channel Islands since 2005
Experience in operator theory and functional analysis, existence and uniqueness in the multidimensional moment problem, mathematics in music.
Selected publications:
A reproducing kernel condition for indeterminacy in the multidimensional moment problem, Proc. Amer. Math. Soc. 135, 2007.

Brian Sittinger
Lecturer in Mathematics
Ph.D. in Mathematics, University of California Santa Barbara, 2006
Mathematics faculty at CSU Channel Islands since 2007
Experience in number theoretic probabilities, algebraic integers, Riemann zeta function.
Selected publications:
The probability that random algebraic integers are relatively r-prime, Journal of Number Theory **130**, 2010.

Matthew Dirk Wiers
Lecturer in Mathematics and Statistics
MBA in Decision Sciences, Indiana University, 1985
MS in Applied Statistics, The Ohio State University, 1988
Mathematics faculty at CSU Channel Islands since 2003
Experience in generalized linear models, actuarial mathematics, research design and data analysis, and statistical programming.

Selected publications:
1. Measurement of Retinal Vascular Tortuosity and Its Application to Retinal Pathologies (with Dougherty and Johnson), Medical and Biological Engineering and Computing, 2010.
2. Analysis of Covariance Using an Artificial Neural Network (with Hill and Forsythe), 1995.
3. Nonparametric Rank Based Main Effects Test Procedures for the Two-Way Layout (with Wolfe, Dean and Hartlaub), Nonparametric Statistics, 1991.

Extended University fully reimburses the State for faculty teaching in the special session degree program. Faculty members teach either through overload within the 125% parameters or receive course buy-out at a rate set by the V.P. of Finance and Administration. In addition to tenure track staff, the program is supported by part-time faculty hired on a course-by-course contractual basis. As the program grows, additional faculty resources will be funded by student fees.

b. Space and facilities that would be used in support of the proposed program.

Student fees provide sufficient resources through Extended University to reimburse the State for the use of appropriate classroom space. As the program grows, additional space and facilities will be funded by student fees.

c. A report provided by the campus Library, detailing resources available to support the program (discussion of subject areas, volume counts, periodical holdings, etc. are appropriate).

The Dean of the Library, Amy Wallace, says that the library collection meets the research needs of students in the MS in Mathematics program. The library subscribes to the major database and online journals collections in the field, including MathSciNet, Wiley Interscience, and Science Direct. In addition, the library provides instruction on how to locate and evaluate research materials to the students in this program. As a result, they make good use of our collections and, when necessary, utilize services such as interlibrary loan.

d. Existing academic technology, equipment, and other specialized materials currently available.

Student fees provide sufficient resources through Extended University to reimburse the State for the use of needed academic technologies. Additionally, Extended University maintains separate resources for additional technology support. As the program grows, additional technology resources will be funded by student fees.

9. Additional Support Resources Required
(CPEC "Total Costs of the Program")

Note: If additional support resources will be needed to implement and maintain the program, a statement by the responsible administrator(s) should be attached to the proposal assuring that such resources will be provided.

No additional support resources are required for this program.

a. Any special characteristics of the additional faculty or staff support positions needed to implement the proposed program.

b. The amount of additional lecture and/or laboratory space required to initiate and to sustain the program over the next five years. Indicate any additional special facilities that will be required. If the space is under construction, what is the projected occupancy date? If the

space is planned, indicate campus-wide priority of the facility, capital outlay program priority, and projected date of occupancy.

c.   A report written in consultation with the campus librarian, indicating any additional library resources needed. Indicate the commitment of the campus either to purchase or borrow through interlibrary loan these additional resources.

d.   Additional academic technology, equipment, or specialized materials that will be (1) needed to implement the program and (2) needed during the first two years after initiation. Indicate the source of funds and priority to secure these resource needs.

THE CALIFORNIA STATE UNIVERSITY
OFFICE OF THE CHANCELLOR

March 18, 2011

Dr. Richard R. Rush, President
California State University, Channel Islands
One University Drive
Camarillo, California 93012

Dear Dick:

The Division of Academic Affairs has reviewed the proposal to convert to regular status the pilot Master of Science degree program in Mathematics at California State University, Channel Islands.

The Master of Science in Mathematics program appears on the campus Academic Master Plan, which was approved by the CSU Board of Trustees. You have provided information indicating that adequate faculty, physical facilities, and library holdings sufficient to maintain the program currently exist or that such support can realistically be expected to become available.

Upon the recommendation of my staff, I am pleased to continue the authorization for California State University, Channel Islands to offer the Master of Science in Mathematics, effective fall 2011, conditional on the existence of adequate resources. In accordance with CSU Board of Trustees policy, performance review of this self-funded degree program should be scheduled to occur within the next five years. If the campus wishes to offer this program through General Fund, Chancellor's Office review and approval will be required. This Master of Science program will continue to report under the degree-program code number 17011 with an assigned CIP code of 27.0101.

With kind regards,

Sincerely,

Charles B. Reed
Chancellor

CBR:clm

c: Dr. Ephraim P. Smith
    Dr. Stephen Lefevre
    Dr. Richard Cordiero
    Dr. Dawn Neuman