

# Floraliza Bornasal, PhD

The Hal and Inge Marcus School of Engineering | Saint Martin's University, 5000 Abbey Way, Lacey, WA 98503 | Phone: (509) 499-5187 | email: fbornasal@stmartin.edu

## TEACHING EXPERIENCE - SUMMARY

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- Primary teaching interests are introduction into engineering, engineering mechanics (Statics, Dynamics, and Mechanics of Materials), traffic/transportation engineering, geotechnical engineering, theories of teaching and learning and application into engineering education, engineering ethics, applied statistical methods for engineering, and senior design.
- Assisted in developing curricular materials in freshman engineering course at Oregon State University, and subsequently facilitated recitation for course.
- Actively engaged in one-on-one tutoring of engineering and education students.
- Served as engineering and graduate research “expert” consultant for two events.

## RESEARCH EXPERIENCE - SUMMARY

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- Research interests include transition of learning and knowing from academia to practice, engineering education research methodology, situated and distributed cognition, and transportation engineering and safety.
- Actively participated in the development of multiple National Science Foundation (NSF) proposals.
- Primary researcher in an ethnographic case study by being a participant-observer at a private consulting firm for five months.
- Assisted in writing several technical reports, a peer-reviewed journal article, and several conference papers.
- Currently in the process of writing several articles and conference papers for submission in peer-reviewed publications.

## SERVICE - SUMMARY

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- Actively engaged in student leadership roles throughout collegiate career.
- Engaged in community service via neighborhood committees, local groups, and student organizations.

## EDUCATION

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*Oregon State University, Corvallis, OR*

- **Doctor of Philosophy - Civil Engineering**, June 2015  
Dissertation: “Knowing concepts in the social and material context of engineering practice”
- **Master of Science - Civil Engineering**, June 2012  
Thesis: “Transportation network connectivity, facilities encouraging walkability, and crime”

*Saint Martin’s University, Lacey, WA*

- **Bachelor of Science - Civil Engineering**, May 2009  
Area of Concentration: Transportation

## TEACHING EXPERIENCE AND CONSULTATION

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*Saint Martin’s University, Lacey, WA*

- **Assistant Professor, Civil Engineering**, August 16, 2015 - Present  
Courses for Fall 2015 include
  - Transportation Engineering Lab (CE324)
  - Pavement Design (CE435/CE535)
  - Senior Design (CE498)
  - Project Management (MEM612/MCE612)

*Oregon State University, Corvallis, OR*

- **Post-Doctoral Researcher – to Dr. Shane Brown**, Summer 2015  
Mentored graduate students, completed research, developed research designs with students
- **Teaching Assistant – to Dr. Shane Brown in “Capstone Design”**, Winter 2015  
Mentored design project teams and graded assignments.
- **Teaching Assistant – to Dr. Shane Brown in “Engineering Orientation”**, Fall Quarter 2013  
Collaborated in curriculum development, facilitated recitations, met with students, and graded all written work.

*Washington State University, Pullman, WA*

- **Mentor for Cougar Undergraduate Research Experience (CURE)**, June 2013  
Presented and facilitated “Types of literature and sources” section for Research Skills Short Course (RSSC)
- **Content consultant for Enhancing Understanding of Concepts and Practices of Science (EUCAPS) workshop**, June 2013  
Served as engineering content consultant for professional development of K-8 educators during weeklong workshop.
- **Tutor – “Quantitative Research”**, January 2013 – May 2013  
Tutored a graduate (international) student in statistical methods and quantitative research methods. Met twice a week for approximately an hour per session, checked homework, and assisted in laying framework for class projects.

*Saint Martin’s University, Lacey, WA*

- **Engineering Tutor - Learning & Writing Center**, Fall Semester 2008  
Peer tutor for students in introductory physics, statics, mechanics of materials, fluid mechanics, and structural analysis.

## RESEARCH EXPERIENCE

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### *National Science Foundation (NSF), Awarded Proposal*

- *Oregon State University, **Primary Field Researcher**, June 2014 – December 2014*  
Title: “CAREER: Characterization of Cognitive Models of Conceptual Understanding in Practicing Civil Engineers and Development of Situated Curricular Materials” (*Award No. 1055356*)  
Conducted field investigation through ethnographic research methods, mentored undergraduate research assistant, developed framework for study, developed all research materials (i.e. interview protocols, observation field note framework, transcribed interviews).

### *National Science Foundation (NSF), Submitted Proposals*

- *Oregon State University, **Research Assistant**, December 2013 – February 2014*  
Title: “Investigation of Context Across Engineering Domains: Bridging the Eye-Mind Divide”  
Conducted literature review on situated learning, communities of practice, novice and expertise research, and research methodologies. Assisted in writing and editing funding proposal.
- *Washington State University, **Research Assistant**, December 2013 – February 2014*  
Title: “Building the foundation for institutional reform in science, mathematics, and engineering education courses at Washington State University”  
Conducted literature review on organizational change.

### *Pacific Northwest Transportation Consortium (PACTRANS), Multi-institution Education Project for 2012-2013*

- *Washington State University & Oregon State University, **Research Assistant**, October 2012 – February 2014*  
Title: “Digital Dissemination Platform of Transportation Engineering Education Materials”  
Assisted in developing technical report, conducted semi-structured interviews with transportation engineering faculty, and assisted in developing framework for website.

## PUBLICATIONS AND PAPERS

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Brown, S.A, **F.B. Bornasal**, S. Brooks, and J.P. Martin. (2014). Civil engineering faculty incorporation of sustainability in courses and relation to sustainability beliefs. *ASCE Journal of Professional Issues in Engineering Education and Practice*, 10.1061/(ASCE)EI.1943-5541.0000225 , C4014005.

## CONFERENCE PAPERS AND POSTERS

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**Bornasal, F.B.** and S.A. Brown. (2015, July 13-15). *Engineering concepts in engineering performances and social interactions*. (2015). Paper presented at the 6<sup>th</sup> Research in Engineering Education Symposium: Translating Research into Practice, Dublin, Ireland.

Wallace, L.S., **F.B. Bornasal**, and S.A. Brown. (2015, June 14-17). *Concepts in roundabout resources: A comparison between academic and practical text using content analysis*. Paper presented at 2015 ASEE Annual Conference and Exposition, Seattle, WA.

Urlacher, M.A., S.A. Brown, P.A. Steif, & **F.B. Bornasal**. *Practicing civil engineers’ understanding of statics concept inventory questions*. (2015, June 14-17). Paper presented at 2015 ASEE Annual Conference and Exposition, Seattle, WA.

**Bornasal, F.B.**, J.N. Lester, and S.A. Brown. (2014, June 15-18). *Recollecting experience in interviews: the structure and organization of engineering 'interview talk.'* Paper presented at 2014 ASEE Annual Conference and Exposition, Indianapolis, IN.

**Bornasal, F.B.** and S.A. Brown. (2014, June 15-18). *Prevalence of inscriptions in transportation engineering text: Clues to context.* Poster presented at 2014 ASEE Annual Conference and Exposition, Indianapolis, IN.

**Bornasal, F.B.** (2014, March 06). *Contextualization and representation of engineering concepts across settings.* Poster presented at OSU CCE/MIME Graduate Research Exposition.

**Bornasal, F.B.** (2013, June 23-26). *Prevalence, abstraction, and meaningful relationships of visual representation in transportation engineering education.* Poster Presented at 2013 ASEE Annual Conference and Exposition, Atlanta, GA.

## **PRACTICAL EXPERIENCE**

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*CH2M Hill, Portland, OR*

**Engineering Intern**, July 2014 - January 2015

Served as engineering design intern within transportation business group. Work coincided with doctoral research project. Participated in construction of alternatives analysis matrix, project cost estimates, and quality control of deliverables.

*Garfield County Public Works, Pomeroy, WA*

**Project Engineering Inspector**, June 2011 - September 2011

Project owner representative and inspector for Peola Road realignment and reconstruction project.

*Community Frameworks, Spokane, WA*

**AmeriCorps Volunteer-in-service-to-America (VISTA)**, September 2009 - September 2010

Developed and coordinated single-family housing condition and block condition surveys for East Central neighborhood, developed database and developed GIS/mapping document on housing conditions, and represented organization in neighborhood councils and business associations.

*Garfield County Public Works, Pomeroy, WA*

**Summer Intern**, (Summers) May 2005 - September 2009

Designed recycling center, developed materials report, specifications review, fleet/equipment analysis, quarries study, GIS mapping of county road systems.

*Keltic Engineering, Lewiston, ID*

**Engineer Tech/Assistant**, June 2008 - September 2008

Developed storm water pollution prevention plan (SWPPP) for local construction projects, alternatives transportation study, traffic studies, storm calculations, and foundation inspection report.

## **HONORS AND AWARDS**

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Gates Millennium Scholars Fellowship, September 2010 - Present

Maurice D. Rausch Outstanding Senior Civil Engineering Award, *Saint Martin's University*, May 2009

Cum Laude, *Saint Martin's University*, May 2009

Curriculum vitae for Floraliza B. Bornasal, PhD

Ralph Swanson Leadership Award, *Saint Martin's University*, April 2009

Society of Fellows Member, *Saint Martin's University*, April 2009

## LEADERSHIP AND SERVICE

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### *Oregon State University*

- American Railway Engineering and Maintenance of Way, **student organization Vice President, Secretary and Treasurer**, 2011 - 2014
- American Society of Engineering Education, **member**, 2012 - 2015
- Institute of Transportation Engineers, **member**, 2010 - 2015
- Region X Student Transportation Conference, **Planning Committee Member**, 2010 - 2011

### *Community Service*

- Asian Pacific Islander American Scholarship Fund, **Scholarship Application Reader**, 2010 - 2011

### *East Central Neighborhood, Spokane, WA*

- East Central Neighborhood Council, **Sidewalk Committee Co-chair**, 2009 - 2010
- Pedestrian, Traffic, and Transportation (PeTT), **East Central Neighborhood Representative**, 2009 - 2010
- East Central Neighborhood Council, **Ad-hoc Photo Red Funding Traffic Committee member**, 2009 - 2010

### *Saint Martin's University*

- Habitat for Humanity Olympia, **Construction Volunteer**, 2008 - 2009
- Filipino Heritage Club, **student organization Founder and President**, 2007 - 2009
- Northwest Filipino American Student Alliance, **Affiliate Student Representative**, 2007 - 2009
- American Society of Civil Engineers, **student organization Secretary and Treasurer**, 2006 - 2009
- Society of Women Engineers, **student organization Vice President and President**, 2006 - 2009
- Intercultural Club Alliance, Hui O' Hawaii, Circle K Service Club, **member**, 2005 - 2009
- Campus Ministry and Dela Salle School (Browning, MT), **Volunteer Tutor and Mentor**, 2008
- Campus Ministry and Habitat for Humanity (Newberg, NY), **Construction Volunteer**, 2007
- Campus Ministry and Habitat for Humanity (Birmingham, AL), **Construction Volunteer**, 2006
- Social Action Club and Opportunity Rocks, **Volunteer for Hurricane Katrina home demolition**, 2006
- HANDS of Campus Ministry, **student organization Secretary**, 2006

## LANGUAGES

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English – native language

Tagalog – speak fluently