CURRICULUM VITAE

NAME

Butters, Gregory

ADDRESS

Soil and Crop Sciences
College of Agricultural Sciences

Plant Sciences

PHONE

(970) 491-6314

EDUCATION

1987 Ph D, University of California

1983 BS, University of California

1983 BS, University of California

PUBLISHED WORKS

Refereed Journal Articles

Discrimination-Inference to ReduceExpected Cost Technique (DIRECT): A New Approachfor Improving Hydrologic Experimental Design. *Water Resources Research*.

In situ measures of methanotroph activity in upland soils: A reaction-diffusion model and field observation of water stress. *J Geophys Res, 114, G01015, doi:10 1029/2008JG000731*.

McDaniel, J. P., Butters, G., Barbarick, K. A., Stromberger, M. E. (2015). Effects of Aporrectodea caliginosa on soil hydraulic properties and solute dispersivity. *Soil Science Society of America Journal, 79*, 838-847.

Non-Refereed Journal Articles

Sebastian, D. J., Nissen, S. J., Westra, P., Shaner, D., Barbarick, K. A., Butters, G. Influence of Soil Properties and Soil Moisture on the Efficacy of Indaziflam and Flumioxazin on Kochia scoparia. *Pest Management Science*.

Huber, D. P., Butters, G., Garcia, L. A. Unreconciled effects of salinity on draining and wetting functions in unsaturated soils. *Vadose Zone Journal*.

Huber, D. P., Butters, G. L., Garcia, L. A. Unreconciled effects of salinity on draining and wetting functions in unsaturated soils. *Vadose Zone Journal*.

Green, C. H., Heil, D. M., Cardon, G. E., Butters, G., Kelly, E. F. (2003). Solubilization of manganese and trace metals in soils affected by acid mine runoff. *Journal of environmental quality, 32*(4), 1323-34.

Earthworm Affects On SoluteLeaching In a Biosolids Amended Soil. ASA-CSSA-SSSA International Annual Meetings, Oct 16-19, 2011, San Antonio, TX.

Mineralogical and micromorphological modifications in soil affected by slash pile burn. ASA-CSSA-SSSA International Meeting, Nov 1-5, Pittsburgh, PA Absts2009 55573.

Mineralogical and micromorphological modifications in soil affected by slash pile burn. VI International Conference on Forest Fire Research, Coimbra Portugal (Oct 15-18, 2010).

PerformanceEvaluation of TDT Soil Water Content and WatermarkSoil Water Potential Sensors. Proceedings of the US Commission on Irrigation and Drainage (USCID),Emerging Challenges and Opportunities forIrrigation Managers: Energy, Efficiency, and Infrastructure Apr 26-29, 2011, Albuquerque, NM.

Solution Chemistry Effects On Soil HydraulicProperties: Changes with Changing Soil WaterContent. ASA-CSSA-SSSA International AnnualMeetings, Oct. 16-19, 2011, San Antonio, TX.

Transport of CO2 and other combustion products in soils during slash-pile burns. 4Th International Congress of Fire Ecology and Management, Nov30- Dec 4, 2009, Savannah, Georgia.

Transport of CO2 and Other Combustion Products in Soils during Slash-Pile Burns. VI International Conference on Forest Fire Research, Coimbra Portugal (Oct 15-18, 2010).

Treatment of Oily Waste water by Magnetically-Activated Filtration Membranes. American Institute of ChemicalEngineers (AIChE) Annual Meeting Oct 28 – Nov 2.

PERFORMANCES, EXHIBITS, PRODUCTIONS (Visual/Performing Arts):

September 1, 2014 - October 1, 2014, Air dry water contents for MS student

April 1, 2014 - May 1, 2014, Soil water retention for Dr. Pilar Andres

December 1, 2013, Physical properties measurements

May 2013 - August 2013, FEScUE Research Cluster in Soil Biogeochemistry-FEScUE (Flexible and Extendable Scientific Undergraduate Experience) – Invited

2012, Each year I assist graduate students from different departments with their experimental needs in soil physics. This assistance is in the form of advising experimental design, use of my lab space and equipment, and help with analysis of results. In 2012, the following projects were conducted in the soil physics lab-

1. Moisture retention curves for soils amended with Biochar. This research is part of Amanda Morrison's MS program in Forestry. Amada is in the write-up stage of her thesis.

2. Effect of saline water on saturated hydraulic conductivity of sandy and clayey soils. These experiments were part of Heath Himstedt's Ph. D. in Chemical Engineering (Dissertation Title: Novel Fouling Resistant Magnetically-responsive Membranes for Treatment of Impaired Water, October 2012). This research has resulted in a conference presentation and a research publication in preparation.

3. Moisture retention curves for sodium saturated bentonite. This research is part of Kristin Samples' PhD work on clay liners in waste disposal containment (Civil Engineering).

Other Publications in preparation-

1. Huber, D. P., G.L. Butters, L.A. Garcia, and K.A. Barbarick. 201x. Soil hydraulic properties as affected by water quality changes. Vadose Zone Journal. (This is from Dave Huber's MS program in Soil and Crop Sciences. The analysis and writing is complete. The paper is in final editing. Submission for publication

planned for early 2013.)

2. McDaniel, J., G.L. Butters, and K.A. Barbarick. 201x. Effect of earthworm activity on soil water retention and solute dispersion. SSSAJ. (This is from Jacob McDaniels' MS program in Soil and Crop Sciences. The analysis and writing is complete. The paper is in final editing to condense thesis content to manuscript length and format. Submission for publication planned for early 2013.)

2012, FEScUE Research Cluster in Soil Biogeochemistry-

FEScUE (Flexible and Extendable Scientific Undergraduate Experience) is a NSF funded program aimed at training undergraduate students for a career in research. A team of three faculty members(myself and Joe von Fischer(Biology) and Yongcheng Zhou(Mathematics)) worked with a team of three undergraduate students to plan, execute, and analyze lab and field experiments evaluating methane consumption and production in soil. In the summer of 2012, we established 12 field plots northeast of Ft. Collins, CO to measure soil methane flux and methane profiles in soils at different water contents.

2010, I have an on-going commitment to helping researchers in the CSU community with experimental measurements in soil physics. In 2010, expertise, equipment and/or laboratory space was provided to:
David Schimelpfenig (graduate student, GDPE) for the measurement of hydraulic properties of peat soils.
Jacob McDaniels (Research Associate, Soil and Crop Sciences) for the measurement of chemical movement in laboratory soil columns.
Bill Massman (USDA-Forest Service) for the measurement of thermal properties of forest soils.

PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS

February 24, 2016, "Don't cry over spilled water; analysis and modeling of produced water spills in Weld County, Co", 22nd Annual Front Range Student Ecology Symposium, Colorado State University, (Presenter) Shores, A. R.

November 18, 2015, "Season Dynamics of Phosphorus Fractions Under Center Pivot Irrigation", Synergy in Science: Partnering for Solutions, American Society of Agronomy, (Presenter) McDaniel, J. P.

November 12, 2015, "Season Dynamics of Phosphorus Fractions Under Center Pivot Irrigation", The Year of the Soil, RMWEA Biosolids Committee, (Presenter) McDaniel, J. P.

June 10, 2015, "Is microbial habitat the missing link to predict how soil management alters ecosystem functions?A case study of cropland greenhouse gases.", Biennial Meeting, Soil Ecology Society, (Presenter) Brewer, P.

April 16, 2015, "Biosolids phosporus availability to plants and the environment", Departmental Seminar, Department Of Soil and Crop Sciences, (Presenter) McDaniel, J. P.

November 3, 2014, "Low-Cost Method for Monitoring Soil Air Pressure Using Microcontroller Board", American Society of Agronomy Annual Meetings, Soil Science Society of America, (Presenter) McDaniel, J. P., Long Beach, Ca.

November 3, 2014, "Soil Phosphorus Accumulation Following 20 Years of Wheat-Fallow with Biosolids", American Society of Agronomy Annual Meetings, Abstract 94-8, American Society of Agronomy, Long Beach, CA.

November 3, 2014, "Soil Phosphorus Accumulation Following 20 Years of Wheat-Fallow with Biosolids", American Society of America Annual Meetings, Abstract 94-8, American Society of America, Long Beach, CA.

November 6, 2013, "Earthworm Affect on Chemical Leaching", American Society of Agronomy, Abstract 349-3, Tampa, FL.

November 6, 2013, "Earthworm effect on chemical leaching", Annual Meeting of the Soil Science Society of America, SSSA, (Presenter) McDaniel, J. P., Tampa, FL.

2012, "Himstedt, H.H., Bauder, T., Butters, G., Qian, X., Wickramasinghe, S.R. "Treatment of Oily Wastewater by Magnetically-Activated Filtration Membranes". American Institute of Chemical Engineers (AIChE) Annual Meeting. Oct. 28 – Nov. 2, 2012".

2011, "Bartolo, M.E., and Butters, G.L. Effect of water salinity on cantaloupe yield and quality. Extension Forum / AES Meeting, Nov. 9-10, 2011, Fort Collins, Co.".

October 19, 2011, "Earthworm Affects On Solute Leaching In a Biosolids Amended Soil", American Society of Agronomy Annual Meetings, Abstract 391-6.

TEACHING:

Year	Semester	Course No./Title	Cr. Hrs.	Enrollment
2016	Spring	SOCR799 - Dissertation	18	12
2016	Spring	SOCR490 - Hydrus-1D Workshop	1	12
2016	Spring	SOCR240 - Introductory Soil Science - Lab	0	14
2015	Fall	SOCR799 - Dissertation	18	11
2015	Fall	SOCR240 - Introductory Soil Science -Lab	0	16
2015	Fall	SOCR470 - Soil Physics	3	57
2015	Fall	SOCR471 - Soil Physics Laboratory	1	12
2015	Fall	SOCR471 - Soil Physics Laboratory	1	13
2015	Spring	SOCR799 - Dissertation	18	12
2015	Spring	SOCR490 - Hydrus-1D Workshop	1	8
2015	Spring	SOCR240 - Introductory Soil Science - Lab	0	17
2014	Fall	SOCR799 - Dissertation	18	15
2014	Fall	SOCR240 - Introductory Soil Science -Lab	0	17
2014	Fall	SOCR470 - Soil Physics	3	74
2014	Fall	SOCR471 - Soil Physics Laboratory	1	16
2014	Fall	SOCR471 - Soil Physics Laboratory	1	13
2014	Spring	SOCR799 - Dissertation	18	15
2014	Spring	SOCR490 - Hydrus-1D Workshop	1	10
2014	Spring	SOCR240 - Introductory Soil Science - Lab	0	19
2014	Spring	SOCR784 - Supervised College Teaching	18	7
2013	Fall	SOCR799 - Dissertation	18	19
2013	Fall	SOCR240 - Introductory Soil Science	1	18
2013	Fall	SOCR240 - Introductory Soil Science -Lab	0	18
2013	Fall	SOCR470 - Soil Physics	3	60
2013	Fall	SOCR471 - Soil Physics Laboratory	1	18
2013	Fall	SOCR471 - Soil Physics Laboratory	1	15
2013	Fall	SOCR471 - Soil Physics Laboratory	1	16

2013	Fall	SOCR471 - Soil Physics Laboratory	1	9
2013	Fall	SOCR784 - Supervised College Teaching	18	6
2013	Spring	SOCR571 - Foundations of Soil Science	2	12
2013	Spring	SOCR490 - Hydrus-1D Workshop	1	11
2013	Spring	SOCR240 - Introductory Soil Science - Lab	0	16
2013	Spring	SOCR486 - Practicum	4	6
2012	Fall	SOCR240 - Introductory Soil Science -Lab	0	17
2012	Fall	SOCR470 - Soil Physics	3	60
2012	Fall	SOCR471 - Soil Physics Laboratory	1	17
2012	Fall	SOCR471 - Soil Physics Laboratory	1	16
2012	Spring	SOCR480A5 - Hydrus-1D Workshop	1	9
2012	Spring	SOCR495 - Independent Study	18	5
2012	Spring	SOCR240 - Introductory Soil Science - Lab	0	18
2011	Fall	SOCR240 - Introductory Soil Science -Lab	0	18
2011	Fall	SOCR470 - Soil Physics	3	51
2011	Fall	SOCR471 - Soil Physics Laboratory	1	17
2011	Fall	SOCR471 - Soil Physics Laboratory	1	14
2011	Spring	SOCR479 - Environmental Soil Science Laboratory	1	0
2011	Spring	SOCR478 - Environmental Soil Sciences	3	0
2011	Spring	SOCR480A5 - Hydrus-1D Workshop	1	8
2011	Spring	SOCR240 - Introductory Soil Science - Lab	0	15
2010	Fall	SOCR240 - Introductory Soil Science -Lab	0	8
2010	Fall	SOCR470 - Soil Physics	3	48
2010	Fall	SOCR471 - Soil Physics Laboratory	1	9
2010	Fall	SOCR471 - Soil Physics Laboratory	1	13
2010	Spring	SOCR770 - Advanced Soil Physics	4	0
2010	Spring	SOCR770 - Advanced Soil Physics - Lab	0	0
2010	Spring	SOCR479 - Environmental Soil Science Laboratory	1	0
2010	Spring	SOCR478 - Environmental Soil Sciences	3	0
2010	Spring	SOCR240 - Introductory Soil Science - Lab	0	19
2010	Spring	SOCR240 - Introductory Soil Science - Lab	0	18
2009	Fall	SOCR240 - Introductory Soil Science -Lab	0	16
2009	Fall	SOCR470 - Soil Physics	3	40
2009	Fall	SOCR471 - Soil Physics Laboratory	1	11
2009	Fall	SOCR471 - Soil Physics Laboratory	1	12
2009	Spring	SOCR479 - Environmental Soil Science Laboratory	1	0
2009	Spring	SOCR478 - Environmental Soil Sciences	3	0
2009	Spring	SOCR240 - Introductory Soil Science - Lab	0	18
2009	Spring	SOCR792 - Seminar	1	3
2008	Fall	SOCR240 - Introductory Soil Science -Lab	0	15
2008	Fall	SOCR470 - Soil Physics	3	25
2008	Fall	SOCR471 - Soil Physics Laboratory	1	8
2008	Fall	SOCR471 - Soil Physics Laboratory	1	6
2008	Spring	SOCR479 - Environmental Soil Science Laboratory	1	1
2008	Spring	SOCR478 - Environmental Soil Sciences	3	1
2008	Spring	SOCR795 - Independent Study	18	4
2007	Fall	SOCR240 - Introductory Soil Science - Lab	0	12
2007	Fall	SOCR470 - Soil Physics	3	24
2007	Fall	SOCR471 - Soil Physics Laboratory	1	5
2007	Fall	SOCR471 - Soil Physics Laboratory	1	5

Guest Lectures:

Year	Semester	Course No./Title	# of Guest Lectures	Delivery Mode
2015	Spring	SOCR571 - Foundations of Soil Science	2	Face to Face
2013	Spring	SOCR571 - Fondations of Soil Science	2	Face to Face

Evidence of Teaching Effectiveness (Annual Input)

Student Course Surveys

Fall 2015, SOCR 240–Introductory Soil Science -Lab
Good student evaluations.
mean score for course=4.86
mean score for instructor=5.00
course evals socr240 Fall2015-1.pdf

Fall 2015, SOCR 470–Soil Physics
Student surveys were mostly positive. On the downside, students complain about the class being too much work or too hard. On the upside, students report good learning experience
meann course score 4.29
mean instructor score 4.76
2015 course evals-1.pdf

Fall 2015, SOCR 471–Soil Physics Laboratory
Students were asked about retaining the Pass/Fail format of the lab or moving to a traditional grading scheme. Students overwhelmingly responded with keep it Pass/Fail.
mean course score=4.33
mean instructor score=4.89
Fall 2015_ L01 course evaluations-1.pdf

Fall 2015, SOCR 471–Soil Physics Laboratory
Student response was positive
mean course score=4.73
mean instructor score=4.82
Fall 2015_ L02 course evaluations-1.pdf

Written Comments from Students

Fall 2013, SOCR 470–Soil Physics
Student evaluations are good (see attached).
Fall 2013 Course Evaluations-1.pdf

Fall 2013, SOCR 471–Soil Physics Laboratory
Course evaluations are good (see attached)
SOCR 471_Fall 2013 L01 course evaluations-1.pdf

Fall 2013, SOCR 471–Soil Physics Laboratory
Student evaluation are good (see attached).
SOCR 471_Fall 2013 L02 course evaluations-1.pdf

Other Evidence

Spring 2015, SOCR 490–Hydrus-1D Workshop
This class remains small, about 10 students. The student feedback is positive. The most common suggestion I get from students is to make it a longer course.
Sp 15 course evals-1.pdf

Spring 2015, SOCR 240–Introductory Soil Science - Lab
Students seem to generally enjoy the lab.
course evals socr240 Sp2015-1.pdf

Fall 2014, SOCR 470–Soil Physics
This was the largest soil physics course I've taught (beginning with 82, finished with 75).
SOCR470 Course Evaluations_Fall 2014-1.pdf

Spring 2013, SOCR 571–Foundations of Soil Science
I presented two guest lectures on soil physics

COMMITTEES

Academic Affairs Committee, (January 1, 2011 - Present).

Academic Affairs Committee, (January 20, 2013 - December 15, 2013).

Department Review Committee.

Coordinator of Undergraduate Curriculum, (January 1, 2011 - Present).

Resident Instruction Panel, (January 1, 2011 - Present).

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Member, College Code Committee.

Executive Committee to Faculty Council.

Faculty Council.

Reviewer, Journal Article, Journal of Horticulture.

Committee Chair, Resident Instruction Panel.

Undergraduate Curriculum.

Reviewer, Journal Article, Journal of Natural Sciences Education, Madison, Wisconsin. (April 13, 2016 - April 14, 2016).

Reviewer, Journal Article, Journal of Environmental Quality. (March 26, 2016 - March 29, 2016).

OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH

Search Committee member, UDSA-ARS, Fort Collins, CO. (June 25, 2015 - Present).

advisor, Colorado Climate Center, Fort Collins, Colorado. (August 13, 2015 - Present).

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