

CURRICULUM VITAE

NAME

Paustian, Keith H

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Soil and Crop Sciences
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EDUCATION

1987 Ph D, SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES

1980 MS, Colorado State University

1977 BS, Colorado State University

OTHER POSITIONS

2001 - Present Professor, Dept. Soil and Crop Sciences, CSU.

1996 - Present Senior Research Scientist, Natural Resource Ecology Lab, CSU.

1993 - 1995 Research Scientist, Natural Resource Ecology Laboratory, CSU.

1991 - 1993 Research Assistant Professor, WK Kellogg Biol. Station, Michigan State U.

1989 - 1993 Research Associate Professor, Michigan State University.

PUBLISHED WORKS

Refereed Journal Articles

Six, J., Paustian, K. H. (2014). Aggregate-associated soil organic matter as an ecosystem property and a measurement tool. *Soil Biology & Biochemistry*, 68, A4-A9.

Sheehan, J., Adler, P. R., DelGrosso, S. J., Easter, M., Parton, W., Paustian, K. H., Williams, S. (2014). CO₂ emissions from crop residue derived biofuels. *Nature Climate Change*, 4, 932-933.

Paustian, K. H., Rumpel, C., Pan, G. (2014). Enhancing carbon sequestration for mitigation and co-benefits in agriculture: actions and novel practices. *Carbon Management*, 5(2), 1-3.

Mello, F.F.C., Cerri, C.E.P., Davies, C. A., Holbrook, N. M., Paustian, K. H., Maia, S.M.F., Galdos, M. V., Bernoux, M., Cerri, C. C. (2014). Payback time for soil carbon and sugar-cane ethanol. *Nature Climate Change*, 4(605-609).

Ogle, S., Olander, L., Wollenberg, L., Paustian, K. H. (2014). Reducing GHG emissions and adapting agricultural management for climate change in developing countries: providing a basis for action. *Global Change Biology*,

- Frazao, L. A., Paustian, K. H., Cerri, C.E.P., Cerri, C. C. (2014). Soil carbon stocks under oil palm plantations in Bahia State, Brazil. *Biomass & Bioenergy*, 62, 1-7.
- Paustian, K. H. (2013). Bridging the data gap: engaging developing country farmers in greenhouse gas accounting. *Environmental Research Letters*, 8.
- Milne, E., Paustian, K. H. (2013). Methods of quantification of GHG emissions at the landscape level for developing countries in smallholder contexts. *Environmental Research Letters*, 8.
- Suddick, E., Ngugi, M., Paustian, K. H., Six, J. (2013). Monitoring soil carbon will prepare growers for a carbon trading system. *California Agriculture*, 67.
- (2012). Agriculture, farmers and GHG mitigation: a new social network? *Carbon Management*, 3(3), 253-257.
- (2012). Assessing the potential for greenhouse gas mitigation in intensively managed annual cropping systems at the regional scale. *Agro Eco Environ*, 144, 150-158.
- (2012). Carbon balances in US croplands during the last two decades of the twentieth century. *Biogeochemistry*, 107, 207-225.
- (2012). Climate change effects on organic carbon storage in agricultural soils of northeastern Spain. *Agriculture Ecosystems & Environment*, 155, 87-94.
- (2012). CO₂ emissions from cropland in Norway estimated by IPCC default and Tier 2 methods. *Greenhouse Gas Measurement and Management*, 2, 21-May.
- (2012). No-till management impacts on crop productivity, carbon inputs and soil carbon sequestration. *Agri Ecosys Environ*, 149, 37-49.
- (2012). Soil carbon stocks and changes after oil palm introduction in the Brazilian Amazon. *GCB Bioenergy*, doi:10.1111/j.1757-1707.2012.01196.x ; Article first published online: 16 JUL 2012 Manuscript Accepted: 22 MAY 2012 Manuscript Received: 28 NOV 2011.
- (2012). Soil carbon sequestration and associated economic costs for farming systems of the Indo-Gangetic Plain: A meta-analysis. *Agri Ecosys Environ*, 146, 137-146.
- (2011). Assessing the potential for greenhouse gas mitigation in intensively managed annual cropping systems at the regional scale. *Agriculture, Ecosystems and Environment*, 144, 150-158.
- (2011). How can soil monitoring networks be used to improve predictions of organic carbon pool dynamics and CO₂ fluxes in agricultural soils? *Plant and Soil*, 338, 247-259.
- (2011). Knowledge gaps in soil carbon and nitrogen interactions - From molecular to global scale. *Soil Biology and Biogeochemistry*, 43, 702-717.
- (2011). Measuring and monitoring soil organic carbon stocks in agricultural lands for climate mitigation. *Front Ecol Environ*, 9, 169-173.
- (2011). Modelling soil organic carbon stocks and their changes in the northeast of Spain. *European J Soil Sci*, 62, 685-695.

- (2011). Potential soil carbon sequestration in a semiarid Mediterranean agroecosystem under climate change: Quantifying management and climate effects. *Plant and Soil*, 338(2-Jan), 261-272.
- (2011). Procedures for initializing soil organic carbon pools in the DSSAT-CENTURY model for agricultural systems. *Soil Science Society of America Journal*, 75(1), 69-78.
- (2010). Agricultural management explains historic changes in regional soil carbon stocks. *P Natl Acad Sci USA*, 107, 14926-14930.
- (2010). Carbon sequestration in agricultural lands of the United States. *J Soil Water Conserv*, 65, 6A-13A.
- (2010). Evaluating the Century C model using two long-term fertilizer trials representing humid and semi-arid sites from India. *Agriculture Ecosystems & Environment*, 139(2-Jan), 264-272.
- (2010). Measuring and monitoring soil organic carbon stocks in agricultural lands for climate mitigation. *Frontiers in Ecology and the Environment* doi:10.1890/090153.
- (2010). Partitioning soil carbon responses to warming: Model-derived guidance for data interpretation. *Soil Biology & Biochemistry*, 42, 2034-2036.
- (2010). Scale and uncertainty in modeled soil organic carbon stock changes for US croplands using a process-based model. *Global Change Biol*, 16, 810-822.
- (2010). Simulation of sugarcane residue decomposition and above ground growth. *Plant Soil*, 326, 243-259.
- (2010). Soil carbon sequestration rates and associated economic costs for farming systems of south-eastern Australia. *Australian Journal of Soil Research*, 48(8), 720-729.
- (2010). Soil organic carbon changes monitored over large areas. *EOS*, 91(47), 441-442.
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- (2009). Incorporation of crop phenology in Simple Biosphere Model (SiBcrop) to improve land-atmosphere carbon exchanges from croplands. *Biogeosciences*, 6, 969-986.
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- (2009). Modeling soil organic carbon stocks and changes in a Nepalese watershed. *Agr Ecosyst Environ*, 132, 91-97.
- (2009). Simulation of Soil Carbon Dynamics under Sugarcane with the CENTURY Model. *Soil Sci Soc Am J*, 73, 802-811.
- (2009). Soil Aggregation and Soil Organic Carbon Stabilization. *Soil Sci Soc Am J*, 73, 1519-1529.
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- (2008). Residue carbon stabilization in soil aggregates of no-till and tillage management of dryland cropping systems. *Soil Sci Soc Am J*, 72, 507-513.
- (2008). Soil carbon saturation. *Soil Sci Soc Am J*, 72, 379-392.
- (2008). Soil carbon saturation. *Soil Biol Biochem*, 40, 1741-1750.
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- (2007). An increased understanding of soil organic carbon stocks and changes in non-temperate areas. *Agr Ecosyst Environ*, 122, 125-136.
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- (2007). Predicted soil organic carbon stocks and changes in Kenya between 1990 and 2030. *Agr Ecosyst Environ*, 122, 105-113.

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- (2003). Interpretation of soil carbon and nitrogen dynamics in agricultural and afforested soils. *Soil Sci Soc Am J*, 67, 1620-1628.
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- (2002). State-level analyses of C sequestration in agricultural soils. *Global Biogeochem Cy*, 16, 193-204.
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- (2001). Influence of dry-wet cycles on the interrelationship between aggregate, particulate organic matter, and microbial community dynamics. *Soil Biol Biochem*, 33, 1599-1611.
- (2001). Influence of microbial populations and residue quality on aggregate stability. *Appl Soil Ecol*, 16, 195-208.
- (2001). Modeling and regional assessment of soil carbon. *Sssa Spec Publ*, 16, 207-225.

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- (2001). Sources and composition of soil organic matter fractions between and within soil aggregates. *Eur J Soil Sci*, 52, 607-618.
- (2000). A re-evaluation of the enriched labile soil organic matter fraction. *Eur J Soil Sci*, 51, 283-293.
- (2000). Fungal translocation as a mechanism for soil nitrogen inputs to surface residue decomposition in a no-tillage agroecosystem. *Soil Biol Biochem*, 32, 689-698.
- (2000). Management options for reducing CO₂ emissions from agricultural soils. *Biogeochemistry*, 48, 147-163.
- (2000). Soil carbon pools and fluxes in long-term corn belt agroecosystems. *Soil Biol Biochem*, 32, 157-168.
- (2000). Soil macroaggregate turnover and microaggregate formation. *Soil Biol Biochem*, 32, 2099-2103.
- (2000). Soil structure and organic matter. *Soil Sci Soc Am J*, 64, 681-689.
- (2000). Soil structure and soil organic matter. *Soil Sci Soc Am J*, 64, 1042-1049.
- (1999). Aggregate and soil organic matter dynamics under conventional and no-tillage systems. *Soil Sci Soc Am J*, 63, 1350-1358.
- (1999). Application of the hexokinase-glucose-6-phosphate dehydrogenase enzymatic assay for measurement of glucose in amended soil. *Soil Biol Biochem*, 31, 933-935.
- (1999). Bacterial and fungal abundance and biomass in conventional and no-tillage agroecosystems along two climatic gradients. *Soil Biol Biochem*, 31, 573-585.
- (1999). Bacterial and fungal cell-wall residues in conventional and no-tillage agroecosystems. *Soil Sci Soc Am J*, 63, 1188-1198.
- (1999). Carbon sequestration in soils. *J Soil Water Conserv*, 54, 382-389.
- (1999). Microbial contributions to the aggregation of a cultivated grassland soil amended with starch. *Soil Biol Biochem*, 31, 407-419.
- (1999). Simulation of growth and flux of carbon and nitrogen through earthworms. *Pedobiologia*, 43, 537-546.
- (1998). Aggregation and soil organic matter accumulation in cultivated and native grassland soils. *Soil Sci Soc Am J*, 62, 1367-1377.
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- (1998). Mitigation of greenhouse gas emissions by the agriculture sector - New technologies, policies and measures offer potential to mitigate emissions while improving productivity and ecosystem health. *Climatic Change*, 40, 5-Jan.

- (1998). Modeling soil carbon in relation to management and climate change in some agroecosystems in central North America. *Adv Soil S*, 31, 459-471.
- (1998). Soil microbial activity, nitrogen cycling, and long-term changes in organic carbon pools as related to fallow tillage management. *Soil Till Res*, 49, 18-Mar.
- (1998). Tillage and crop management impacts on soil C storage. *Soil Till Res*, 47, Vii-Xii.
- (1997). Agricultural soils as a sink to mitigate CO₂ emissions. *Soil Use Manage*, 13, 230-244.
- (1997). Global estimates of potential mitigation of greenhouse gas emissions by agriculture. *Nutr Cycl Agroecosys*, 49, 221-228.
- (1997). The use of models to integrate information and understanding of soil C at the regional scale. *Geoderma*, 79, 227-260.
- (1996). Modelling climate, CO₂ and management impacts on soil carbon in semi-arid agroecosystems. *Plant Soil*, 187, 351-365.
- (1995). Use of a network of long-term experiments for analysis of soil carbon dynamics and global change. *Aust J Exp Agr*, 35, 929-939.
- (1994). Terrestrial Carbon Pools - Preliminary Data from the Corn-Belt and Great-Plains Regions. *Sssa Spec Publ*, 35, 179-191.
- (1993). Analysis of Agroecosystem Carbon Pools. *Water Air Soil Poll*, 70, 357-371.
- (1992). An Approach to Assessment of Management Impacts on Agricultural Soil Carbon. *Water Air Soil Poll*, 64, 423-435.

Non-Refereed Journal Articles

- Smith, P., House, J. I., Bustamante, M., Sobocká, J., Harper, R., Pan, G., West, P. C., Clark, J. M., Adhya, T., Rumpel, C., Paustian, K. H., Kuikman, P., Cotrufo, M. F., Elliott, J. A., McDowell, R., Griffiths, R. I., Asakawa, S., Bondeau, A., Jain, A. K., Meersmans, J., Pugh, T. A. (2016). Global change pressures on soils from land use and management. *Global change biology*, 22(3), 1008-28.
- Lugato, E., Paustian, K. H., Panagos, P., Jones, A., Borrelli, P. (2015). Quantifying the erosion effect on current carbon budget of European agricultural soils at high spatial resolution. *Global change biology*.
- Wang, Y., Zhao, C., Ma, Q., Li, Y., Jing, H., Sun, T., Milne, E., Easter, M. J., Paustian, K. H., Au Yong, H. W., McDonagh, J. (2015). Carbon benefits of wolfberry plantation on secondary saline land in Jingtai oasis, Gansu--A case study on application of the CBP model. *Journal of environmental management*, 157, 303-10.
- Campbell, E. E., Johnson, J.M.F, Jin, V. L., Lehman, R. M., Osborne, S. L., Varvel, G. E., Paustian, K. H. (2014). Assessing the soil carbon, biomass production, and nitrous oxide emission impact of corn stover management for bioenergy feedstock production using DAYCENT. *Bioenergy Research*, 7(2)(491-502).
- Brandini, C. B., Abbruzzini, T. F., Williams, S., Easter, M., Cerri, C.E.P., Paustian, K. H. (2014). Simulation of management and soil interactions impacting SOC dynamics in sugarcane using the Century Model. *Glob. Change Biol. Bioenergy DOI*, 10.1111, gcb.12175.

Non-Refereed Chapters in Books

Paustian, K. H. (2014). Soil: Carbon Sequestration in Agricultural Systems. *Encyclopedia of Agriculture and Food Systems*. San Diego: Elsevier: Encyclopedia of Agriculture and Food Systems.

(2012). *Greenhouse gas emissions from U.S. agriculture and forestry: A review of emissions sources, controlling factors, and mitigation potential*. Interim report to USDA under Contract#GS23F8182H ; http://www.usda.gov/oce/climate_change/techguide/Denef_et_al_2011_Review_of_reviews_v1.0.pdf.

(2012). *Methods for the quantification of emissions at the landscape level for developing countries in smallholder contexts*. CCAFS Report No 9 Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) 600p.

(2012). *Report of Greenhouse Gas Accounting Tools for Agriculture and Forestry Sectors*. Interim report to USDA under Contract NoGS23F8182H http://www.usda.gov/oce/climate_change/techguide/Denef_et_al_2012_GHG_Accounting_Tools_v1.pdf(ver 30/10/2012).

(2011). *Carbon Sequestration and Greenhouse Gas Fluxes in Agriculture: Challenges and Opportunities*. CAST report no. 142, 106 p.

(2010). *Verifying Greenhouse Gas Emissions: Methods to Support International Climate Agreements*. National Academies Press, Washington, DC 110 pp.

Book Review

(2012). *COMET 2.0 – Decision support system for agricultural greenhouse gas accounting* (pp. 251-270). *Managing Agricultural Greenhouse Gases: Coordinated Agricultural Research through GraceNet to Address Our Changing Climate*; Academic Press, San Diego, CA; Liebig, M, Franzluebbers, A, and Follett, R,(eds).

(2011). *Quantification and Decision Support Tools for US Agricultural Soil Carbon Sequestration* (pp. 307-341). *Handbook of Climate Change and Agroecosystems: Impact, Adaptation and Mitigation*; Chapter 16; Imperial College Press, London; D Hillel and C Rosenzweig (Eds).

(2010). *Quantification and Decision Support Tools for US Agricultural Soil Carbon Sequestration* (pp. 307-341). Chapter 16 In: *Handbook of Climate Change and Agroecosystems: Impact, Adaptation and Mitigation*, World Scientific, Singapore; D Hillel and C Rosenzweig (Eds).

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

November 2014, "Linking Biogeochemistry, Management and Economics: Climate Change Impacts on Soil C Dynamics in the Corn Belt", Soil Science Society of America Annual Meeting, SSSA, Long Beach, CA.

April 2014, "Beetlejuice - Researching Sustainable Biofuels from Beetle-Kill Wood in the Rockies", NW Wood-Based Biofuels+Co-Products Conference, Seattle, WA.

November 12, 2013, "Quantifying GHG emissions from US Agriculture: Fields to Nation", Soil Carbon Modeling in Agricultural & Forest Ecosystems, Institute of Environmental Research - Tsukuba, Japan, Tsukuba Japan.

November 6, 2013, "Aggregates to Ecosystems: Representing Management Impacts on Soil C Turnover", Soil Science Society of America Annual Meeting, SSSA, Tampa, FL.

November 5, 2013, "Farm-level full GHG accounting with COMET-Farm", Soil Science Society of America

Annual Meeting, Tampa, FL.

November 5, 2013, "Fields To Continents: Issues Of Scale and Uncertainty For Modeling Soil GHG Emissions and Mitigation", Soil Science Society of America Annual Meeting, Tampa, FL.

May 6, 2013, "Quantifying agricultural GHGs: the 'sticking point' for mitigation from the Ag sector ?", 4th International Symposium on SOM Dynamics, Univ. of Nanjing, and Chinese Academy of Sciences, Nanjing China.

2012, "C sequestration and GHG mitigation in agriculture – can reality live up to potential?, AAAS Annual meeting Vancouver, Canada".

2012, "GHG inventories – AFOLU, the 'problem child', seminar at Wageningen University, Netherlands".

2012, "Modeling agricultural soil C dynamics: putting our tools into action - Mexican Soil Sci. Soc. annual meeting, Zacatecas, Mexico".

2012, "Overview of Quantification Issues for agricultural C accounting in developing countries, FAO workhop, Rome, Italy".

2012, "SOM and Ecosystem services – some thoughts, UN/GEF workshop, Nairobi, Kenya".

2011, "K. Paustian, S. Archibeque, K. Brown, E. Campbell, A. Chambers, K. Denef, S. Delgrosso, M. Easter, G. Johnson, S. Ogle, C. Olson, K. Peterson, A. Swan, S. Williams
Farm-level accounting of GHG emissions: Can farmers be the new carbon accountants?
SSSA annual meeting, San Antonio, TX
Oct 18, 2011 (Invited)".

2011, "Keith Paustian and Karolien Denef. Can farmers be the new carbon accountants?
International Symposium on Soil Organic Matter, 11-14 July, 2011, Leuven, Belgium. (invited keynote)".

2011, "Keith Paustian, John Field, Kevin Brown, Eleanor Campbell, William Parton, Kris Peterson, Stephen Ogle, Kenneth Reardon
Decision support tool for integrated

biofuel greenhouse gas emission
footprints
NREL-DOE workshop, Golden, CO Sep 21,
2011 (Invited)".

2011, "Keith Paustian, Karolien Denef, M.
Francesca Cotrufo, Stephen Ogle
C sequestration and GHG mitigation in
agriculture – can reality live up to
potential?
AAAS annual meeting, Vancouver, Feb 17,
2012 (Invited)".

2011, "Keith Paustian, Kris Peterson, Shawn
Archibeque, Kevin Brown, Eleanor
Campbell, Adam Chambers, Steven Del
Grosso, Mark Easter, Greg Johnson,
Kendrick Killian, Stephen Ogle, Carolyn
Olson, Jill Schuler, Amy Swan, and
Steve Williams
Farm-level accounting of greenhouse gas
(GHG) emissions: maximizing efficiency
of agricultural GHG mitigation
strategies
SWCS annual meeting, Washington, DC
July 19, 2011 (invited)".

2011, "Paustian, K. Long-term field
experiments: Measurement and Modeling
Synergisms
SWCS, April 2011, Denver (invited)".

2010, "Carbon Benefits Project - Presentation
at GEF/World Bank workshop on
implementing REDD projects - Wash. DC".

2010, "COMET-Farm: Estimating emissions
reductions and carbon sequestration at
farm-scale - UNFCCC-COP sideevent
organized by USDA/OCE".

2010, "COMET-VR Decision support system for
agricultural greenhouse gas accounting -
American Chemical Society Symposium".

2010, "Estimating the Carbon Benefits of
Sustainable Land Management Projects:
The Carbon Benefits Project Component
A - WCSS, Brisbane".

2010, "Estimating whole-farm greenhouse gas
and energy footprints".

2010, "International Collaboration on Sustainable Land Management and Greenhouse Gas Mitigation - UNFCCC/COP side event organized by USDA/FAS".

2010, "On-farm GHG accounting: COMET-VR and COMET-Farm - USDA South Building".

TEACHING:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enrollment</u>
2016	Spring	AGRI602 - Bioenergy Policy, Economics, and Assessment	3	0
2016	Spring	AGRI602 - Bioenergy Policy, Economics, and Assessment - Lab	0	0
2016	Spring	ECOL799 - Dissertation	18	21
2016	Spring	SOCR799 - Dissertation	18	12
2016	Spring	SOCR540 - Soil-Plant-Nutrient Relationships	3	11
2015	Fall	ECOL799 - Dissertation	18	26
2015	Fall	SOCR799 - Dissertation	18	11
2015	Fall	SOCR796 - Group Study – Soil Biogeochemical Model	18	2
2015	Fall	SOCR620 - Modeling Ecosystem Biogeochemistry	3	2
2015	Fall	SOCR620 - Modeling Ecosystem Biogeochemistry - Lab	0	2
2015	Fall	SOCR784 - Supervised College Teaching	18	3
2015	Fall	SOCR699 - Thesis	18	11
2015	Summer	SOCR799 - Dissertation	18	1
2015	Spring	AGRI602 - Bioenergy Policy, Economics, and Assessment	3	6
2015	Spring	AGRI602 - Bioenergy Policy, Economics, and Assessment - Lab	0	6
2015	Spring	ECOL799 - Dissertation	18	22
2015	Spring	SOCR799 - Dissertation	18	12
2014	Fall	ECOL799 - Dissertation	18	23
2014	Fall	SOCR799 - Dissertation	18	15
2014	Fall	ECOL698 - Research	18	63
2014	Spring	ECOL799 - Dissertation	18	29
2014	Spring	SOCR799 - Dissertation	18	15
2014	Spring	ECOL698 - Research	18	46
2014	Spring	SOCR540 - Soil-Plant-Nutrient Relationships	3	15
2014	Spring	SOCR784 - Supervised College Teaching	18	7
2014	Spring	SOCR699 - Thesis	18	10
2013	Fall	AGRI601 - Bioenergy Technology	3	6
2013	Fall	AGRI601 - Bioenergy Technology	3	3
2013	Fall	AGRI601 - Bioenergy Technology - Lab	0	3
2013	Fall	ECOL799 - Dissertation	18	27
2013	Fall	SOCR799 - Dissertation	18	19
2013	Fall	ECOL698 - Research	18	55
2013	Fall	SOCR699 - Thesis	18	5
2013	Summer	SOCR799 - Dissertation	18	1
2013	Spring	AGRI602 - Bioenergy Policy, Economics, and Assessment	3	13
2013	Spring	AGRI602 - Bioenergy Policy, Economics, and Assessment - Lab	0	13
2013	Spring	ECOL799 - Dissertation	18	26
2013	Spring	SOCR799 - Dissertation	18	17

2013	Spring	SOCR792 - Seminar	1	6
2013	Spring	SOCR699 - Thesis	18	6
2012	Fall	AGRI601 - Bioenergy Technology	3	4
2012	Fall	ENGR601 - Bioenergy Technology	3	2
2012	Fall	AGRI601 - Bioenergy Technology - Lab	0	4
2012	Fall	ENGR601 - Bioenergy Technology - Lab	0	2
2012	Fall	ECOL799 - Dissertation	18	26
2012	Fall	SOCR799 - Dissertation	18	17
2012	Fall	ECOL698 - Research	18	55
2012	Fall	SOCR792 - Seminar	1	9
2012	Fall	SOCR699 - Thesis	18	7
2012	Spring	AGRI681A1 - Bioenergy Policy, Economics, and Assessment	3	0
2012	Spring	ENGR681A1 - Bioenergy Policy, Economics, and Assessment	3	11
2012	Spring	AGRI681A1 - Bioenergy Policy, Economics, and Assessment - Lab	0	0
2012	Spring	ENGR681A1 - Bioenergy Policy, Economics, and Assessment - Lab	0	11
2012	Spring	ECOL799 - Dissertation	18	19
2012	Spring	SOCR799 - Dissertation	18	15
2012	Spring	SOCR495 - Independent Study	18	5
2012	Spring	SOCR540 - Soil-Plant-Nutrient Relationships	3	21
2012	Spring	SOCR784 - Supervised College Teaching	18	4
2012	Spring	ECOL699 - Thesis	18	10
2012	Spring	SOCR699 - Thesis	18	11
2011	Fall	AGRI680A1 - Bioenergy Technology	3	10
2011	Fall	AGRI680A1 - Bioenergy Technology - Lab	0	10
2011	Fall	ECOL799 - Dissertation	18	18
2011	Fall	SOCR799 - Dissertation	18	12
2011	Fall	SOCR620 - Modeling Ecosystem Biogeochemistry	3	9
2011	Fall	SOCR620 - Modeling Ecosystem Biogeochemistry - Lab	0	9
2011	Fall	SOCR784 - Supervised College Teaching	18	5
2011	Fall	SOCR699 - Thesis	18	9
2011	Spring	AGRI681A1 - Bioenergy Policy, Economics, and Assessment	3	3
2011	Spring	ENGR681A1 - Bioenergy Policy, Economics, and Assessment	3	4
2011	Spring	AGRI681A1 - Bioenergy Policy, Economics, and Assessment - Lab	0	3
2011	Spring	ENGR681A1 - Bioenergy Policy, Economics, and Assessment - Lab	0	4
2011	Spring	ECOL699 - Thesis	18	10
2010	Fall	ENGR697 - Group Study	6	0
2010	Fall	SOCR620 - Modeling Ecosystem Biogeochemistry	3	0
2010	Fall	SOCR620 - Modeling Ecosystem Biogeochemistry - Lab	0	0
2010	Spring	AGRI681A1 - Bioenergy Policy, Economics, and Assessment	3	3
2010	Spring	ENGR681A1 - Bioenergy Policy, Economics, and Assessment	0	2
2010	Spring	AGRI681A1 - Bioenergy Policy, Economics, and Assessment - Lab	0	3
2010	Spring	SOCR795 - Independent Study	18	1

2010	Spring	SOCR540 - Soil-Plant-Nutrient Relationships	3	17
2009	Fall	AGRI680A1 - Bioenergy Technology	3	3
2009	Fall	ENGR680A1 - Bioenergy Technology	3	3
2009	Fall	AGRI680A1 - Bioenergy Technology - Lab	0	3
2009	Fall	ENGR680A1 - Bioenergy Technology - Lab	0	3
2009	Fall	SOCR795 - Independent Study	18	1
2009	Spring	AGRI680A1 - Bioenergy Technology	3	3
2009	Spring	ENGR680A1 - Bioenergy Technology	3	2
2009	Spring	AGRI680A1 - Bioenergy Technology - Lab	0	3
2009	Spring	ENGR680A1 - Bioenergy Technology - Lab	0	2
2009	Spring	SOCR799 - Dissertation	18	10
2009	Spring	SOCR680A1 - Modeling Ecosystem Biogeochemistry	3	8
2009	Spring	SOCR680A1 - Modeling Ecosystem Biogeochemistry - Lab	0	8
2009	Spring	ECOL699 - Thesis	18	11
2008	Fall	SOCR799 - Dissertation	18	12
2008	Fall	ECOL698 - Research	18	34
2008	Fall	ECOL699 - Thesis	18	6
2008	Spring	SOCR799 - Dissertation	18	14
2008	Spring	SOCR795 - Independent Study	18	4
2008	Spring	ECOL698 - Research	18	27
2008	Spring	SOCR540 - Soil-Plant-Nutrient Relationships	3	10
2007	Fall	SOCR799 - Dissertation	18	12
2007	Fall	ECOL698 - Research	18	24
2007	Fall	ECOL699 - Thesis	18	7
2007	Fall	SOCR699 - Thesis	18	7

Guest Lectures:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u># of Guest Lectures</u>	<u>Delivery Mode</u>
2014	Fall	ECOL411 - Earth System Ecology	2	Face to Face
2014	Fall	SOCR440 - Soils and Global Change	3	Face to Face
2013	Spring	SOCR571 - Foundations of Soil Science	2	Face to Face
2013	Spring	SOCR441 - Soil Ecology	2	Face to Face

EXTENSION/ENGAGEMENT ACTIVITIES/ACCOMPLISHMENTS

1 week intensive training course

GHG-ACT. Ft Collins, CO. Number of times program was made: 1. Total number of participants: 8. Percent Responsible: 50%. 2012.

COMMITTEES

Clean Energy Super Cluster.

CSU Energy Institute steering committee, (June 2014 - December 2014).

(2012).

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(2010).

Dept Seminar Series - Spring 2013.

Awards Committee, (January 2014 - December 2014).

Search Committee - Agroecosystem position, (March 2014 - September 2014).

(2012).

(2012).

(2012).

(2011).

(2011).

(2011).

(2011).

(2010).

(2010).

(2010).

(2010).

(2010).

(2010).

(2010).

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

AGU. (2000 - Present).

ESA. (1989 - Present).

SSSA-ASA. (1982 - Present).

Research Colorado. (December 2014).

Moscow ID news. (December 2014).

RM Collegian (CSU). (December 2014).

Takepart.com. (November 2014).

NBC News. (November 2014).

Chemical and Engineering News. (November 2014).

Northern Colorado Business Report. (October 2014).

Denver Post. (November 2013).

Member, Clean Energy Supercluster seed grants. (2012 - Present).

Faculty Opponent. (2012 - Present).

Reviewer, Ad Hoc Reviewer, NSF. (2012 - Present).

SSSAJ, GCB, AEE, Science, Biogeochem. (2012 - Present).

Reviewer, Ad Hoc Reviewer, Swiss National Science Foundation. (2012 - Present).

Tenure and Promotion - Adhoc. (2012 - Present).

Tenure and Promotion - Adhoc. (2012 - Present).

Reviewer, Ad Hoc Reviewer, USDA-AFRI. (2012 - Present).

Committee Chair, Clean Energy Supercluster seed grants. (2011 - Present).

Reviewer, Ad Hoc Reviewer, NSF. (2011 - Present).

SOGES Global Research Challenge Workgroup. (2011 - Present).

Reviewer, Ad Hoc Reviewer, USDA-AFRI. (2011 - Present).

Member, USDA/NIFA Biofuel CAP panel. (2011 - Present).

Carbon Balance and Management. (2010 - Present).

Environmental Research Letters. (2010 - Present).

Plant & Soil - Guest Editor. (2010 - Present).

Soil Biology Biochem. (2010 - Present).

SSSAJ. (2010 - Present).

Member, Carbon Management. (2009 - Present).

Carbon Mgmt Center - CO Clean Energy Collaboratory. (2009 - Present).

Member, Clean Energy Supercluster Executive Comm. (2009 - Present).

Member, AGU. (2000 - Present).

Member, ESA. (1989 - Present).

Member, SSSA-ASA. (1982 - Present).

Reviewer, Ad Hoc Reviewer, Agropolis Foundation (Brazil). (2014).

Editorial Review Board Member, Carbon Management (journal). (2014).

Editor, Journal Editor, Carbon Management. (2014).
Reviewer, P & T Dossier, Cornell University. (2014).
Reviewer, Journal Article, Environmental Research Letters. (2014).
Reviewer, Journal Article, Geoderma. (2014).
Reviewer, Journal Article, Global Change Biology. (2014).
Reviewer, Journal Article, Nature- Climate Change. (2014).
Reviewer, P & T Dossier, North Carolina State University. (2014).
Reviewer, Ad Hoc Reviewer, NSF-Ecosystems. (2014).
Reviewer, P & T Dossier, Texas A&M. (2014).
Reviewer, P & T Dossier, University of Zurich. (2014).
Reviewer, Ad Hoc Reviewer, USDA- NIFA. (2014).
Member, SOGES Executive Committee. (2009 - 2012).
Member, NREL Executive Committee. (2006 - 2011).
Member, ISTec Research committee. (2008 - 2010).

OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH

Non-Governmental Organization (NGO), Rathmann Family Foundation, San Francisco, CA, United States. (September 1, 2014 - December 31, 2014).
For Profit Organization, WSP USA Corp., Reston, VA, United States. (July 1, 2014 - December 31, 2014).
FAO. (2012).
Winrock Intl. (2012).
Winrock International. (2010).
Noble Foundation. (2014).
Soil Renaissance Research Working Group. (2014).
