

CURRICULUM VITA

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CONTACT INFORMATION

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EDUCATION

Ph.D. in Agricultural Engineering, Michigan State University, 1991

M.Sc. in Irrigation, American University of Beirut, 1986

Diploma of Ing'énieur Agricole (Agricultural Engineering), American University of Beirut, 1984

B.Sc. in Agriculture, American University of Beirut, 1984

PROFESSIONAL EXPERIENCE

Professor, Division of Environmental and Renewable Resources, School of Agriculture Business, and Technology, The State University of New York College of Agriculture and Technology at Morrisville (SUNY Morrisville), July 2019 - present

Responsible for teaching and program development in natural resources engineering, conducting applied research in related areas (including geospatial technology and animal waste management), and advising the Bachelor of Technology students in Environmental and Natural resources Management (formerly Renewable Resources). Major activities focus on geospatial technologies, precision agriculture, surveying, and animal waste management.

Professor, Department of Agricultural Engineering (Joint Appointment in the Departments of Agricultural Sciences and Environmental Sciences), SUNY Morrisville, September 2007 – June 2019

Responsible for teaching and program development in natural resources engineering, conducting applied research in related areas (including geospatial

technology and animal waste management), and advising the Bachelor of Technology students in Renewable Resources. Major activities focus on geospatial technologies, precision agriculture, surveying, and animal waste management.

Associate Professor, Department of Agricultural Engineering (with a Joint Appointment in the Departments of Agricultural Sciences and Environmental Sciences), SUNY Morrisville, August 2000 - August 2007

Responsible for teaching and program development in natural resources engineering, conducting applied research in related areas (including animal waste management), and advising the Bachelor of Technology students in Renewable Resources. Major activities focus on geographic information systems (GIS), global positioning systems (GPS), precision farming, surveying, soil and water conservation, water supply and sanitation, agricultural statistics, photogrammetric mapping, and animal waste management.

Head, Department of Bioresource and Agricultural Engineering, Sultan Qaboos University (SQU), June 1999 - August 2000 (Interim Head: August 1998 - June 1999)

Responsible for leading the overall programs of the Department in teaching, research, and service. Also, responsible for recommending the hiring, promotion, and termination of staff; planning and budgeting for facilities and equipment; and directing and overseeing the work of seven academic, seven technical, and one support staff. Other administrative activities included chairing the Department's Board and other standing and ad-hoc committees and representing the Department on several committees within the College of Agriculture at SQU.

Associate Professor, Department of Bioresource and Agricultural Engineering, Sultan Qaboos University, March 1998 - August 2000

Responsible for research and teaching in bioresource and agricultural engineering. Research activities focused on geographic information systems (GIS), crop water requirements, water management, irrigation system design and management, soil and water conservation, and numerical modeling in natural resources engineering. Teaching activities focused on undergraduate and graduate courses in soil and water engineering, watershed hydrology, hydraulics of pipe networks, numerical analysis, and engineering mechanics. Other academic activities included advising undergraduate and graduate students as well as supervising students' special and design projects and M.Sc. theses.

Assistant Dean for Resident Instruction, College of Agriculture, Sultan Qaboos University, September 1996 - June 1999 (Acting: May 1995 to Sep. 1995 & June 1996 to Sep. 1996)

Responsible for administrative duties related to degree programs, registration, student advising, orientation programs, course evaluations, maintenance of student records, and assignment of students to majors within the College of Agriculture with approximately 450 full-time undergraduate students. The students were enrolled in

ten degree programs offered by seven academic departments leading to B.Sc. degrees in agronomy and horticulture, animal science, bioresource and agricultural engineering, entomology and plant pathology, fisheries science, fisheries technology, food science, nutrition and dietetics, soil and water management, and water technology. Acted as a liaison regarding academic and timetabling matters with the University Administration, Deanship of Admissions and Registration, Language Center, and other Colleges on campus. Represented the College on several University-wide committees. Served on several committees within the College, such as the Executive Committee, College Board, Resident Instruction Committee, Graduate Studies Committee, and Student Recruitment Committee. Coordinated efforts within the College on advertising academic programs through expositions, brochures, and taped presentations. Served, on occasion, as the Acting Dean of the College of Agriculture.

Assistant Professor, Department of Bioresource and Agricultural Engineering, Sultan Qaboos University, September 1994 - March 1998

Responsible for research and teaching in bioresource and agricultural engineering. Research activities focused on irrigation system design and management, irrigation scheduling, soil and water conservation, and water management. Teaching activities focused on undergraduate-level courses in soil and water engineering, microcomputer applications in agriculture, and engineering mechanics. Other academic activities included advising final year students, supervising students' special projects, developing new undergraduate and graduate programs in bioresource and agricultural engineering, and supervising technicians.

Adjunct Assistant Professor, Department of Agricultural Engineering, Michigan State University, August 1994 - September 1996

Responsible for providing technical support on several computer models developed in the Department of Agricultural Engineering. Additional responsibilities included joint research projects with the faculty in the Department. Further responsibilities included updating computer software and serving on advisory committees of graduate students.

Visiting Assistant Professor, Department of Agricultural Engineering, Michigan State University, December 1991 - July 1994

Responsible for research in animal waste management, composting system design, irrigation water management, nitrogen scheduling, and sub-irrigation system design. Research activities included developing computer models for overland application of animal manure and composting system design and planning. Other responsibilities included updating and supporting the users of SCS-Scheduler (an irrigation scheduling package for microcomputers) and SI-DESIGN (a computer package for the analysis of subsurface drainage and sub-irrigation systems).

Research Assistant, Department of Agricultural Engineering, Michigan State University, December 1986 - December 1991

Responsible for research and teaching in soil and water engineering. Research activities included developing two software packages: an irrigation scheduling package for microcomputers (SCS-Scheduler) and a computer model to assist with designing subsurface drainage and sub-irrigation systems (SI-Design). Additional responsibilities included conducting training sessions and providing technical support for using the SCS-Scheduler. Other academic activities included the development of several computer models in soil and water engineering and teaching an undergraduate course on irrigation, drainage, and erosion control systems.

Research Assistant, Department of Soils, Irrigation, and Mechanization, American University of Beirut, September 1984 - August 1986

Research responsibilities included the development of a computer model for the simulation of groundwater aquifers in Lebanon. Additional responsibilities included collecting field data for the verification and validation of the developed computer model.

SERVICE AND ADMINISTRATIVE ACTIVITIES

The State University of New York at Morrisville (SUNY Morrisville):

College Senate Representative (August 2021 to Present): At-large representative on SUNY Morrisville's College Senate.

Educational Technology Committee (Member – August 2021 to Present): At-large representative on this standing subcommittee of the College Senate.

Academic Prioritization Taskforce (Chair: August 2014 to June 2015): Taskforce evaluated the 84 academic programs/areas at SUNY Morrisville and produced a final report shared with the college administration and community.

College Promotion Committee (Chair: August 2009 to May 2010, Member: August 2007 to May 2009): Representative of the School of Agriculture and Natural Resources on this standing subcommittee of Faculty Congress.

College Committee on Academic Affairs (Member - September 2001 to May 2003): Representative of the School of Agriculture and Natural Resources on this standing subcommittee of Faculty Congress.

College Committee on Faculty/Staff Handbook (Member - 2000-2001 academic year): Representative of the School of Agriculture and Natural Resources on this ad-hoc subcommittee of Faculty Congress.

College Committee on General Education Assessment (Member - September 2001 to May 2003): Representative of the School of Agriculture and Natural Resources on this standing subcommittee of Faculty Congress.

College Diversity Speakers/Activities Review Board (Member - September 2002 to May 2010): Board is responsible for reviewing proposals and activities on diversity initiatives for consideration by Dr. Sheila Crump-Johnson Institute at SUNY Morrisville.

College Institutional Review Board (Voting member - December 2002 to May 2011): Board responsible for reviewing proposals to assure human subjects' safety, privacy, and confidentiality in research conducted at SUNY Morrisville.

College Research Support Committee (Member - September 2001 to May 2003): Committee appointed by the President "to assist the College in research efforts done by students and professionals and to publicize and promote the ongoing research efforts by the campus".

School of Agriculture and Natural Resources Computer Planning and Management Committee (September 2000 to May 2009): Served as a member of this Committee.

Search Committees: Served as the search committee chair for the renewable energy faculty position in the School of Agriculture and Natural Resources (ANR). Also, served as a member of numerous search committees, including the Environmental Technology and Renewable Resources faculty position; the Executive Director of Institutional Advancement position; the Agricultural Engineering/Diesel Technology faculty position; non-tenure-track renewable energy faculty, and technician positions under a Research Foundation Grant; an entrepreneurship and technology management faculty positions, School of Business and Hospitality; three renewable resources faculty positions, School of ANR; Provost and Vice President for Academic Affairs (three different searches); the chair, an academic staff, and an instructional support associate in the Department of Equine Sciences, School of ANR; an academic staff position in the Department of Agricultural Engineering, School of ANR; and a Development Associate, Office of the Vice President for Institutional Advancement & Development.

Continuing Appointment Committees: Served as a member of (or chaired) numerous continuing appointment (tenure) committees for faculty in the School of Agriculture and Natural Resources, the School of Business and Hospitality, and the School of Liberal Arts.

Plastics Technology Academic Program Review (Fall 2003): Served on the evaluation panel of the Plastics Technology A.A.S. program offered within the Department of Mechanical Technology in the School of Science and Technology (academic program reviews are conducted every five years).

Sultan Qaboos University (SQU):

Advisory Board, *Journal of Agricultural and Marine Sciences* (Member from August 2000 to present).

SQU Academic Publications Governing Board (September 1999 to August 2000): Served as a member of this board responsible for supervising academic publications at SQU, including the following three refereed journals: *Agricultural Sciences*, *Science and Technology*, and *Medical Sciences*.

SQU Remote Sensing and GIS Center (College Representative - November 1999 to August 2000): Represented the College of Agriculture on the committee overseeing this Center, which is a University central facility charged with coordinating research activities, providing training courses, and overseeing the teaching of courses in remote sensing and geographic information systems (GIS) within the University. The Center was also charged with promoting collaboration with private and public institutions outside the University.

University Committee on Academic Policies (Member - September 1995 to August 2000): Represented the College of Agriculture on this standing subcommittee of the University's Academic Council that acts on all academic matters and regulations referred to it by the University's governing body. One of the major activities of the committee involved the development of rules and regulations that govern the graduate programs offered at SQU, as well as reviewing academic regulations that govern all undergraduate programs.

University Advising and Counseling Committee (January 1996 to September 1998): Represented the College of Agriculture on this ad-hoc committee. The committee was formed in 1996 to analyze the existing academic advising system at SQU and assess its shortcomings. The committee developed faculty and student handbooks for academic advising and prepared a proposal for establishing a counseling center at SQU. The Counseling and Guidance Center was inaugurated in 1999.

University Committee on Course and Instructor Evaluations (Member from September 1996 to September 1998): A course and teaching survey was developed by this ad-hoc committee. The survey was administered by all academic units on campus starting from the 1996 Fall semester.

University Committee on Timetabling (September 1995 to June 1999): Represented the College of Agriculture on this standing committee that deals with timetabling issues of courses and teaching schedules for faculty at SQU.

University Prospectus Committee (September 1996 to September 1998): Represented the College of Agriculture on this ad-hoc committee that developed the University Prospectus and University Catalogue. The first issue was published in 1997.

University Committee on Grading Issues: Represented the College of Agriculture on this ad-hoc committee. The committee was formed during the 1996 Fall semester to address the grade reporting issues at SQU and develop uniform guidelines. A general procedure for reporting grades to the Deanship of Admissions and Registration was developed and implemented by all colleges and centers.

College of Agriculture Board (September 1995 to August 2000): Served as a member of the College Board, responsible for major policy issues regarding academic and training matters.

College of Agriculture Executive Committee (June 1996 to August 2000): Served as a member of the Executive Committee, responsible for addressing administrative issues in the College. Members of the Executive Committee include the Dean, Assistant Deans, Heads of Departments, Director of the Agricultural Experiment Station, and Director of Administration.

Editor-in-Chief, *SQU Journal for Scientific Research - Agricultural Sciences* (June 1999 to August 2000): *Agricultural Sciences* is a peer-reviewed journal that publishes basic and applied research articles in agricultural, food, and marine sciences.

Section Editor, *SQU Journal for Scientific Research - Agricultural Sciences* (August 1998 to June 1999): Responsible for articles involving the bioresource and agricultural engineering area.

Editorial Board of the *SQU Journal for Scientific Research - Agricultural Sciences* (Member from May 1995 to August 1998): Was instrumental in the startup of the journal, the development of "Guidelines to Authors", and the publication of the first issue in May 1996.

College of Agriculture Graduate Studies Committee (September 1996 to August 2000): Served as a member of this committee that has the responsibilities of reviewing the implementation of academic rules and regulations of the graduate programs (eight M.Sc. programs) within the College of Agriculture, assessing the qualifications of faculty for membership in graduate faculty, reviewing qualifications of thesis committee members, and reviewing the suitability of students for graduate studies.

College of Agriculture Extension Committee (September 1999 to August 2000): Served as a member of this committee that has the overall responsibilities of monitoring, assessing, and coordinating the extension activities within the College and their impacts on the agricultural and fisheries communities. The committee was also charged with the responsibility of liaising with the public and private sectors in agribusiness extension.

College of Agriculture Resident Instruction Committee (Member: September 1995 to June 1996, Chair: June 1996 to June 1999): This standing committee was responsible for evaluating the standard and relevancy of all undergraduate curricula in the College. Also, the committee was delegated the responsibility of preparing academic policies and procedures for the College, organizing teaching and advising workshops, and dealing with academic matters referred by the Dean and College Board.

College of Agriculture Student Recruitment Committee (December 1997 to September 1998): Chaired this committee that was charged with recruiting students to join the ten undergraduate programs within the College of Agriculture. The committee's mandate was to bolster student numbers through visits to secondary schools and media campaigns.

College of Agriculture Computer Planning and Management Committee (September 1994 to September 1996): Chaired this committee that was responsible for evaluating the computer needs of the College and the acquisition, distribution, and support of computer hardware and software. Was also responsible for supervising the computer laboratories in the College, coordinating the College's computer course, and liaising with the Computer Center on computer and network matters.

College of Agriculture Evaluation Officer (September 1996 to June 1999): Served as the evaluation officer for the College of Agriculture with the primary responsibility of coordinating course and teacher evaluation surveys developed by the University (was also responsible for analyzing the completed surveys within the College during the 1998 Fall and 1999 Spring semesters).

Search Committees: Chaired search committees in the College of Agriculture for the positions of Food/Power & Machinery Engineer, Food Engineer, Soil and Water Engineer, and Head in the Department of Bioresource and Agricultural Engineering; Food Microbiologist and Food Chemist in the Department of Food Science and Nutrition; Assistant Dean for Extension in the College of Agriculture; and several support and technical staff. Also, served as a member of numerous search committees for faculty and staff positions.

CURRENT PROFESSIONAL SOCIETIES

American Society of Agricultural and Biological Engineers, Member - Engineer

HONORARY SOCIETIES AND AWARDS

SUNY Morrisville Distinguished Faculty Award, 2016

Faculty/Staff Philanthropy Award, the State University of New York at Morrisville, 2008

State University of New York Chancellor's Award for Excellence in Teaching, 2007

Who's Who in Science and Engineering, 2004, 2006, and 2007

Who's Who in America, 2005, 2006, 2013, and 2014

College Technology Educator of the Year, the Technology Alliance of Central New York (TACNY), 2005

Teaching Award of Merit, National Association of Colleges and Teachers of Agriculture, 2003

Teaching Award of Merit, National Association of Colleges and Teachers of Agriculture, 2001

Distinguished Service Award, College of Agriculture, Sultan Qaboos University, 1999

Outstanding Graduate Student Award, Department of Agricultural Engineering, College of Engineering, Michigan State University, 1991

Graduate Student Award, Sigma Xi, Michigan State University, 1991

Alpha Epsilon, The Honor Society of Agricultural Engineering, 1991

Phi Beta Delta, The Honor Society for International Scholars, 1989

Gamma Sigma Delta, The Honor Society of Agriculture, 1988

The Honor Society of Phi Kappa Phi, 1988

Graduate Scholarship, United States Agency for International Development, 1984-1986

Dean's Honor List, Faculty of Agricultural and Food Sciences, American University of Beirut, 1984

PROGRAM INTERESTS

Geospatial Technology Applications in Agriculture and Natural Resources

Precision Agriculture

Renewable Energy Systems

Surveying

Animal Waste Management and Composting

Irrigation System Design and Management

Irrigation Water Management and Scheduling

Numerical Modeling and Analysis

EDUCATIONAL MATERIAL DEVELOPMENT

Course Development at SUNY Morrisville:

[AGEN 151](#) – Applied Hydraulics for Hydropower Generation (3 credits). This course was initially offered as a 2-credit course but was revised in 2013 to become a 3-credit course. The course is offered for students in the renewable energy curricula.

[AGSC 132](#) – Introduction to Computer Applications in Precision Farming (2 credits). Several majors in the School of Agriculture and Natural Resources (ANR) require the course.

[AGSC 137](#) – Agricultural Statistics (3 credits). The course was revised in 2016, with it being offered initially as 2 credits under the title “Analysis and Interpretation of Agricultural Data.” Several majors in the School of ANR require the course.

[NATR 113](#) – Introduction to the Global Positioning System (1 credit). Several majors in Environmental Sciences and Renewable Energy require this course.

[NATR 213](#) – Basics of Geospatial Technology (2 credits). Initially offered as a 1-credit course, this course was revised in 2019 to become a 2-credit course. Several majors in Environmental Sciences require this course.

[NATR 216](#) – Basics of Geospatial Analysis (1 credit).

[ENRM 303](#) (formerly RREN 303) – Fundamentals of Geospatial Systems (4 credits). The course was revised in 2014 with it being offered initially as 3 credits under the following title: Fundamentals of GPS/GIS. The course is required in the Environmental and Natural Resources Management (ENRM) B.Tech. program.

[ENRM 420](#) (formerly RREN 420) – Applications of Geospatial Systems I (1 credit). The course is required in the ENRM program (course co-developed with W. Snyder and B. Kelly).

[ENRM 421](#) (formerly RREN 421) – Applications of Geospatial Systems II (2 credits). The course is required in the ENRM program (course co-developed with W. Snyder and B. Kelly).

Course Development at Sultan Qaboos University (SQU):

BIOR 3003 – Soil and Water Concepts in Irrigation Engineering (3 credits). A junior-level course offered in the Bioresource and Agricultural Engineering (BAE) Department.

BIOR 3004 – Agricultural Watershed Hydrology (3 credits). A junior-level course offered in the BAE Department.

BIOR 4004 – Design of Irrigation Systems (3 credits). A senior-level course offered in the BAE Department.

BIOR 6004 – Design Concepts and Computer Applications in Irrigation Engineering (3 credits). A graduate-level course offered in the BAE Department.

BIOR 6005 – Hydraulics of Pipe Networks (3 credits). A graduate-level course offered in the BAE Department.

Developed Course Manuals at SUNY Morrisville (manuals starting from 2020 are published by XanEdu Publishing Inc. and are listed in the Publications section):

AGSC 137: Agricultural Statistics Class Presentations and Handouts Manual. 2017, 2018, 2019, and 2020 (the manual was used in AGSC 137).

Applied Hydraulics for Hydropower Generation (AGEN 151): Class Manual. 2010, 2011, 2012, 2014, 2015, 2016, 2017, 2018, and 2019 (the manual was used in AGEN 151).

Basics of Geospatial Technology and Analysis: Class Manual. 2014, 2016, 2018, 2019, and 2020 (the manual was used in NATR 213 and NATR 216).

Computer Assisted and Photogrammetric Mapping: Course Manual. 2002, 2003, 2004, 2005, 2006, 2008, 2009, 2010, and 2013 (the manual was used in NATR 213).

Construction Surveying: Course Manual. 2002 and 2003 (the manual was used in AGEN 135).

Course Manual for Geospatial Technology Applications I & II (co-authors: W.S. Snyder and B. Kelly). 2008, 2009, 2010, 2012, 2016, and 2019 (the manual was used in RREN 420 and RREN 421).

Fundamentals of Geospatial Systems: Class Presentations. 2014, 2016, 2018, 2019, and 2020 (the manual was used in RREN 303).

Introductory Exercises Using QGIS Desktop. 2014, 2015, 2016, 2017, 2018, and 2019 (the manual was used in AGSC 132 and RREN 303).

Introductory Surveying Laboratory Manual (co-author: J. Cronn). 2004, 2006, 2007, 2009, 2011, 2015, 2016, 2018, and 2019 (the manual was used in AGEN 135 and NATR 142).

Introductory Surveying Lecture Manual. 2004, 2006, 2008, 2009, 2011, 2015, 2016, 2017, 2018, and 2019 (the manual was used in AGEN 135 and NATR 142).

Introduction to Computer Applications in Precision Farming. 2001, 2002, 2003, 2004, 2005, 2006, 2008, 2011, 2012, 2014, 2015, 2017, 2018, and 2019 (the manual was used in AGSC 132).

QGIS Desktop Training Manual. 2015, 2016, 2017, 2018, 2019, 2020 (the manual was used to conduct 2-day GIS training based on QGIS).

Water Supply and Sanitation Class Manual. 2007, 2009, and 2010 (the manual was used in AGEN 120).

TEACHING EXPERIENCE

The State University of New York at Morrisville:

Water Supply and Sanitation, [AGEN 120](#) (2 credits): Course offered annually (Spring 2002 to Spring 2010) in the Agricultural Engineering Department with at least a one-hour lecture section and two 2-hour laboratory sections offered each spring.

Construction Surveying, [AGEN 135](#) (3 credits): Course offered annually (Fall 2001 to Fall 2019) with one 2-hour lecture section and one 3-hour laboratory section usually offered each fall.

Applied Hydraulics for Hydropower Generation, [AGEN 151](#) (3 credits): Course offered annually (Spring 2010 to Spring 2021) with one 2-hour lecture section and one 2-hour laboratory section being offered each spring (course initially offered as a 2-credit course but was revised in 2013 to become a 3-credit course).

Soil and Water Conservation, [AGRO 105](#) (2 credits): Course offered annually (Spring 2001 to Spring 2003) in the Department of Agricultural Science, Business, and Dairy, with one 1-hour lecture section and one 2-hour laboratory section offered each spring.

Computer Applications in Precision Farming I, [AGSC 130](#) (1 credit): Course offered during the 2001 Fall semester in the Department of Agricultural Science, Business, and Dairy with one 1-hour lecture section offered during the semester.

Introduction to Computer Applications in Precision Farming, [AGSC 132](#) (2 credits): Course offered annually (Fall 2001 to Fall 2021) with at least one 1-hour lecture section and two 2-hour laboratory sections offered each fall.

Computer Applications in Research I, [AGSC 135](#) (1 credit): Course offered during the 2001 and 2002 Spring semesters in the Department of Agricultural Science, Business, and Dairy with one 1-hour lecture section offered each spring.

Computer Applications in Precision Farming II, [AGSC 140](#) (1 credit): Course offered during the 2000 Fall and 2001 Spring semesters in the Department of Agricultural

Science, Business, and Dairy with one 1-hour lecture section offered each semester.

Analysis and Interpretation of Agricultural Data, AGSC 137 (2 credits): Course offered annually (Spring 2003 to Spring 2016) in the Department of Agricultural Science, Business, and Dairy with at least one 2-hour lecture section offered each spring.

Agricultural Statistics, [AGSC 137](#) (3 credits): Course offered annually (Spring 2017 to Spring 2022) with one 3-hour lecture section offered each spring.

Computer Applications in Research II, [AGSC 145](#) (1 credit): Course offered during the 2001 and 2002 Fall semesters in the Department of Agricultural Science, Business, and Dairy with one 1-hour lecture section offered each fall.

Introduction to the Global Positioning System, [NATR 113](#) (2 credit): Course offered annually starting from Spring 2022, with a one-hour lecture section and two 2-hour laboratory sections offered during the first seven weeks of the spring semester.

Plane Surveying, [NATR 142](#) (3 credits): Course offered annually (Fall 2003 to Fall 2021) with one 2-hour lecture section and two 3-hour laboratory sections offered each fall.

Basics of Geospatial Technology, [NATR 213](#) (2 credits): Course offered annually (Spring 2014 to Spring 2022) with one 1.5-hour lecture section and two 2-hour laboratory sections offered during the first ten weeks of the spring semester (course was originally offered as a 1-credit course and was revised in 2019 to become a 2-credit course).

Computer Assisted and Photogrammetric Mapping, NATR 213 (1 credit): Course offered annually (Spring 2001 to Spring 2013) in the Environmental Sciences Department with at least two 2-hour lecture/laboratory sections of the course offered during the first ten weeks of the spring.

Fundamentals of Geospatial Systems, [ENRM 303](#) (formerly RREN 303) (4 credits): Course offered annually (Spring 2015 to Spring 2022) with one two-hour lecture section and one 4-hour laboratory section offered each spring.

Fundamentals of GPS/GIS, RREN 303 (3 credits): Course offered annually (Spring 2003 to Spring 2014) in the Environmental Sciences Department with one two-hour lecture section and one 2-hour laboratory section offered each spring.

Geospatial Technology Applications I, [ENRM 420](#) (formerly RREN 420) (1 credit): Course offered annually (Spring 2010 to Spring 2022) with one section of 2.5 hours of lecture/laboratory offered during the last ten weeks of the spring semester (course co-taught with W. Snyder and B. Kelly).

Geospatial Technology Applications II, [ENRM 421](#) (formerly RREN 421) (2 credits): Course offered annually (Fall 2010 to Fall 2021) with one section involving one hour of lecture/discussion and 5 hours of fieldwork offered during the first ten weeks of the fall semester (course co-taught with W. Snyder and B. Kelly).

Internship in Renewable Resources Technology, ENRM 470 (formerly RREN 470) (15 credits): Capstone course offered in the Renewable Resources Technology program (was the faculty advisor for several students enrolled in the course over the years).

Sultan Qaboos University (SQU):

Soil and Water Concepts in Irrigation Engineering, BIOR 3003 (3 credits): Course offered during the 1998 Fall and 2000 Spring semesters in the Bioresource and Agricultural Engineering (BAE) Department (one 2-hour lecture section and one 2-hour laboratory section were offered each semester).

Agricultural Watershed Hydrology, BIOR 3004 (3 credits): Course offered annually (Spring 1995 to Spring 1998) in the BAE Department (one 2-hour lecture section and one 2-hour laboratory section were offered each semester).

Design of Irrigation Systems, BIOR 4004 (3 credits): Course offered during the 1999 Spring semester in the BAE Department (one 2-hour lecture section and one 2-hour laboratory section were offered each semester).

Design Concepts and Computer Applications in Irrigation Engineering, BIOR 6004 (3 credits): A graduate-level course offered during the 1999 Spring semester in the BAE Department (one 2-hour lecture section and one 2-hour laboratory section were offered each semester).

Hydraulics of Pipe Networks, BIOR 6005 (3 credits): A graduate-level course offered during the 1999 Fall semester in the BAE Department (one 2-hour lecture section and one 2-hour laboratory section were offered each semester).

Microcomputers in Agriculture, COMP 2001 (3 credits): Course offered during the 1995 Spring, 1995 Fall, and 1996 Spring semesters in the College of Agriculture (several course sections were offered each semester). Course co-taught with two-three additional faculty members).

Impacts of Agriculture on Arid Environments, ENVR 6071 (3 credits): A graduate-level course offered during the 1996 Spring semester in the Environmental Science program (one 2-hour lecture section and one 2-hour laboratory section were offered each semester). Taught one weekly module in the course.

Mechanics I – Statics, MECH 2301 (3 credits): Course offered annually (Fall 1996 and Fall 1997) in the BAE Department (one 3-hour lecture section was offered each semester).

Mechanics III – Statics, MECH 3401 (3 credits): Course offered annually (Fall 1994 and Fall 1995) in the BAE Department (one 3-hour lecture section was offered each semester).

Advances in Irrigation and Water Technology, WATR 6402 (3 credits): A graduate-level course offered during the 1997 Fall semester in the Soil and Water Management Department (one 2-hour lecture section and one 2-hour laboratory section were offered each semester). Taught one component of the course.

Supervised the thesis of one M.Sc. Student and the research program of four additional M.Sc. students in Bioresource and Agricultural Engineering.

Michigan State University (MSU):

Irrigation, Drainage, and Erosion Control Systems, ATM 431 (4 credits): A senior-level course offered in the Department of Agricultural Engineering (course taught during the 1988 and 1989 fall semesters).

Trained USDA-Soil Conservation Service Irrigation Engineers on the use of SCS-Scheduler. Seven 3-day training sessions were conducted across the United States in 1988 and 1989. An 8th session was conducted in Minnesota in 1990. Three instructors were involved in the 1988 and 1989 sessions, while the 1989 session involved two instructors.

Trained the Michigan Energy Conservation Program Irrigation Technicians on using the Microcomputer Irrigation Scheduler. These training sessions were conducted annually at MSU for three years beginning in 1988 (each training session involved three instructors).

Served as a co-supervisor of one M.Sc. student and on the graduate advisory committee of another Ph.D. student in the Department of Agricultural Engineering.

PUBLICATIONS

Articles in Refereed Journals:

Ahmed, M., **W.H. Shayya**, D. Hoey, and J. Al-Handaly. 2002. Brine disposal from inland desalination plants: Research needs assessment. *Water International* 27(2):1-8.

Ahmed, M., **W.H. Shayya**, D. Hoey, and J. Al-Handaly. 2001. Brine disposal from reverse osmosis desalination plants in Oman and the United Arab Emirates. *Desalination* 133:135-147.

- Ahmed, M., **W.H. Shayya**, D. Hoey, A. Mahendran, R. Morris, and J. Al-Handaly. 2000. Use of evaporation ponds for brine disposal in desalination plants. *Desalination* 130:155-168.
- Al-Hajry, H.A., S.A. Al-Maskry, L.M. Al-Kharousi, O. El-Mardi, **W.H. Shayya**, and M.F.A. Goosen. 1999. Electrostatic encapsulation and growth of plant cell cultures in alginate. *Biotechnology Progress* 15:768-774.
- Bralts, V.F., M.A. Driscoll, **W.H. Shayya**, and L. Cao. 1993. An expert system for the hydraulic analysis of microirrigation systems. *Computers and Electronics in Agriculture* 9:275-287.
- Bralts, V.F., S.F. Kelly, **W.H. Shayya**, and L.J. Segerlind. 1993. Finite element analysis of microirrigation hydraulics using a virtual emitter system. *Transactions of the ASAE* 36(3):717-725.
- Gerrish, P.J., V.F. Bralts, and **W.H. Shayya**. 1996. An improved analysis of microirrigation hydraulics using a virtual emitter system. *Transactions of the ASAE* 39(4):1403-1410.
- Gerrish, P.J., **W.H. Shayya**, and V.F. Bralts. 1996. An improved method for incorporating pipe components into the analysis of hydraulic networks. *Transactions of the ASAE* 39(4):1337-1343.
- Goosen, M.F.A., S.S. Sablani, C. Paton, J. Perret, A. Al-Nuaimi, I. Haffar, H. Al-Hinai, and **W.H. Shayya**. 2003. Solar energy desalination for arid coastal regions: Development of a humidification-dehumidification seawater greenhouse. *Solar Energy Journal* 75:413-419.
- Goosen, M.F.A., S.S. Sablani, **W.H. Shayya**, C. Paton, and H. Al-Hinai. 2000. Thermodynamic and economic considerations in solar desalination. *Desalination* 129(1):63-89.
- He, Y., W. Tao, Z. Wang, and **W.H. Shayya**. 2012. Effects of pH and seasonal temperature variation on simultaneous partial nitrification and Anammox in free-water surface wetlands. *Journal of Environmental Management* 110:103-109.
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Online Resources:

Developed many academic and informational websites at SUNY Morrisville starting from 2000 and maintained most of these sites until 2011, when several new websites were devised by the College Webmaster. These included academic websites for the School of Agriculture and Natural Resources (2001), Department of Environmental Sciences (2003); Department of Agricultural Engineering Technology (2000); Department of Agricultural Science, Business, and Dairy (2000); and College Committee on General Education Assessment (2001). Other websites included one for the "Agricultural and Food Ventures Conference 2001" held on campus in April 2001; a technical website on the plug-flow, hard-top anaerobic digester located at the Dairy Complex (first developed in 2007 and then updated by the College Webmaster in 2008 to include all renewable energy projects developed on campus).

Developed (in 2000) and continue to maintain a professional website available at the following address: people.morrisville.edu/~shayyaw/index.htm. This website provides access to the web pages of the college courses I taught to date at SUNY Morrisville, along with links with controlled access (intended for students registered in the offered courses) to course material available under Blackboard; a summary of academic and professional experiences; and a webpage (people.morrisville.edu/~shayyaw/html/MSWeather.htm) to access real-time weather data from the two automated weather stations located on campus (one installed at the Dairy Complex in 2003 and another installed at the Academic Quad in 2011), including hourly, daily, monthly, and annual tabular and graphical summary weather reports.

FUNDED RESEARCH PROJECTS

Ahmed, M. 1998 to 2000. Investigation on the use of evaporation ponds for brine disposal in inland desalination plants. (Co-investigators: **W. H. Shayya**, J.K. Al-Handaly, D. Hoey, and A. Mahendran). Project funded by the Middle East Desalination Research Center (\$77,240).

Ballard, B. and **W.H. Shayya** (Co-investigators). 2012 to 2017. Distributed On-farm Bioenergy, Biofuels and Biochemicals (FarmBio3): Development and Production via Integrated Catalytic Thermolysis (a 3-year – 2012 to 2015, \$6,865,942 project which was extended until August 2017). Project funded in cooperation with the United States Department of Agriculture, Agricultural Research Service (\$200,000 annually for three years).

Belcher, H.W., **W.H. Shayya**, and V.F. Bralts. 1992 to 1994. Support for SI-Design: A subirrigation system design program. Project funded by the United States Department of Agriculture, Soil Conservation Service, Washington D.C. (\$10,105).

Cross, R. and **W.H. Shayya**. 2005 to 2006. Managing multiple organic waste inputs in Morrisville's dairy hard-top plug-flow anaerobic digester. Project federally earmarked for funding during the Fiscal Year 2005, the U.S. Department of Energy (DOE) (\$198,000).

Davis, R. 2007. SUNY Morrisville Renewable Energy Training Center. (Grant was written by Russ Davis based on ideas and material provided by **W.H. Shayya** and C. Nyberg). Project was funded by the U.S. Department of Labor (USDOL), Washington D.C. (\$1,999,639). The project started on 1 April 2008 and was completed in August 2011. It was directed by Dr. Ben Ballard.

Norman, W.R. 1995 to 1998. Diagnostic analysis of water management in irrigation systems of Oman. (Co-investigator: **W.H. Shayya**). Project funded by the College of Agriculture, Sultan Qaboos University (R.O.5000 or \$12,950).

Paton, C. 1998 to 2001. Feasibility study of seawater greenhouse development for Oman: Thermodynamics modeling and economic analysis. (Co-investigators: P.A. Davis, S.S. Sablani, **W. H. Shayya**, A. Omezzine, G.V. Chomo, L. Zaibet, and M.F.A. Goosen). Project funded by the Middle East Desalination Research Center (\$39,473).

Sablani, S.S. 1997 to 2000. Use of neural network modeling in food processing applications. (Co-investigator: **W.H. Shayya**). Project funded by the College of Agriculture, Sultan Qaboos University.

Scott, N.R. 2006. Review of curriculum content and programs for anaerobic digestion education and training. (Project Participants: C. Gooch, **W.H. Shayya**, D.M. Goodale, R. Peterson, and I. Clark). Project funded by the New York State Energy Research and Development Authority (\$15,682).

Shayya, W.H. 2007 to 2008. Application of geospatial technology in the monitoring and management of natural resources at SUNY Morrisville. (Co-investigators: B. Kelly and W. Snyder). Project funded through the "Training Module Prototype Development Initiative" of the Institute for the Application of Geospatial Technology (IAGT) at Cayuga Community College (\$45,000).

Shayya, W.H. 2001. Developing site-specific crop management data for fields at the Agricultural Station. Project funded through the Graduate Research Initiative for non-Doctoral Campuses, State University of New York (\$3,000).

Shayya, W.H. 1998 to 2000. Irrigation management of date palm in Oman. (Co-investigator: I.R. McCann). Project funded by the College of Agriculture, Sultan Qaboos University (R.O. 2000 or \$5,180).

Shayya, W.H. 1995 to 1998. Hydraulic analysis of modern irrigation systems in Oman. (Co-investigator: W. R. Norman). Project funded by the College of Agriculture, Sultan Qaboos University (R.O. 4000 or \$10,360).

Shayya, W.H., B. Ballard, R. Alexander, and W. Galusky. 2008 to 2011. Developing educational material for renewable energy projects. A DOE-funded "Energy Partnership" project that will focus on the development of educational material on the operation of the anaerobic digester and wind turbine, training modules that teach the various technologies of alternative fueled vehicles, and educational material that helps elucidate the various socio-technical networks associated with alternative energy technologies (\$50,000).

Shayya, W.H. and C.D. Lu. 2000 to 2001. Researching a manure management system for a new dairy facility. Project funded by the Department of Agriculture and Markets, State of New York (\$15,000).

Shayya, W.H. and R. Cross. 2001 to 2007. Systems approach to studying and demonstrating anaerobic digestion at SUNY Morrisville. Project funded by the New

York State Energy Research and Development Authority (NYSERDA) and the NYS Department of Agriculture and Markets (\$455,184).

Shayya, W.H. and W.R. Norman. 1995 to 1998. Water requirements of principal crops in Oman. Project funded by the College of Agriculture, Sultan Qaboos University (R.O. 6500 or \$16,840).

Last Updated on: May 31, 2022