

DENNIS A. GRAVATT
Associate Professor, Department of Biology
Stephen F. Austin State University
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EDUCATION

- Ph.D. Forest Biology. December 1994. Louisiana State University. Dissertation: “Variation in Canopy Physiology of a Loblolly Pine (*Pinus taeda* L.) Stand in Relation to Climate, Stand Density, and Nutrition.”
- M.A. Botany. May 1991. University of Kansas. Thesis: “Ecophysiology of Five Species of *Sedum* (Crassulaceae).”
- B.S. Systematics and Ecology. May 1988. University of Kansas. Emphasis in plant ecology.

AWARDS AND SCHOLARSHIPS

- National Research Council Associateship Program. Postdoctoral Research Associate Award. 1995-1997.
- Gilbert Foundation Fellowship. 1991-1994. Ph.D. Forest Biology. Louisiana State University.

EMPLOYMENT

- 8/20 – present Professor of Biology
- 1/13 – 8/20 Associate Professor, tenured - Biology, Stephen F. Austin State University. Teaching responsibilities include, Introductory Botany, Medicinal Plants, Plant Physiology, and Economic Botany. Research areas of interest and expertise are plant physiology, plant ecophysiology, wetland ecology and medical botany.
- 9/06 – 1/13. Department Chair, Associate Professor, tenured - Biology, Stephen F. Austin State University. Coordinate department course scheduling for each semester, including meeting dates/times, instructor assignments, faculty workloads, and produce a schedule for university publication.
- 8/99 – 8/06. Assistant Professor & Program Coordinator, tenured - Biology, Stephen F. Austin State University. Coordinate department course scheduling for each semester, including meeting dates/times, instructor assignments, faculty workloads, and produce a schedule for university publication. Teaching responsibilities include, Introductory Botany, Medicinal Plants, Plant Physiology, and Economic Botany. Research areas of interest and expertise are plant physiology, plant ecophysiology, wetland ecology and medical botany.
- 12/97 - 7/99. Ecologist, MEVATEC Corporation. Team Leader. Spatially analyze wetland resources at U.S. Army National Guard installations using remote sensing, field sampling and ground truth wetland map development and develop GIS map base files.
- 5/95 - 11/97. Post-doctoral position. National Research Council Associateship Program.

Seedling physiology and ecology of bottomland hardwood species. Investigate physiological responses of bottomland hardwood tree species to flooding. Monitored reforestation efforts on U.S. Army Corps of Engineers projects, and wrote interim and final reports. Assisted in training courses for wetland ecology and hydrogeomorphic Modeling.

- 8/94 - 5/95. Post-doctoral Associate. School of Forestry, Wildlife and Fisheries, Louisiana State University. Forest Productivity Laboratory. Investigated the causes of decline in forest productivity in loblolly pine plantations as they related to changes in soil nitrogen.
- 1/91 - 8/94. Graduate Fellow. School of Forestry, Wildlife and Fisheries, Louisiana State University. Investigated the variation in physiology of foliage in the canopy of a loblolly pine plantation as it related to changes in micro-environment. Collected physiological data using micro-processor controlled portable photosynthesis systems. Measured ecophysiological processes, growth dynamics, and phenology of flooded bottomland hardwood seedlings.
- 8/76 – 7/86 Production Supervisor. Farmland Industries, Kansas City, KS.

PUBLICATIONS

- Gravatt, D.A., K.E. Hubbard, C.J. Cross and L.L. Beverly. 2021. University and Community College Partnership in Recruiting STEM Teachers: Progress and Missteps. *Journal of Science Teacher Education*. **Submitted October 2021**.
- Hubbard, K.E., C.J. Cross, D.A. Gravatt and L.L. Beverly. 2021. Science Teacher Attrition: The Narrow Track that leads would-be STEM Teachers to Certification. *Journal of Science Teacher Education*: **Submitted**.
- Cross, C.J., K.E. Hubbard, D.A. Gravatt and L.L. Beverly. 2021. The influence of an early intensive field experience on participant's perceptions of STEM teaching. **Submitted**.
- Cross, C.J., K.E. Hubbard, D.A. Gravatt and L.L. Beverly. 2021. STEM major perceptions and persistence to teacher certification. *Journal of STEM Teacher Education*. *Journal of STEM Teacher Education*, 56 (2), 31-50. .
- Cross, C.J., K.E. Hubbard, D.A. Gravatt, L.L. Beverly and A. Aul. 2020. The continuation of a mentoring network for pre-service teachers into early in-service years. *Issues in Educational Research* 30(4): 1286-1309.
- Hopkins, K. and D.A. Gravatt. 2019. Whole leaf photosynthetic light response in a carnivorous plant species: *Sarracenia alata*. *Photosynthetica* 57(4): 985-992.
- Hopkins, K. and D.A. Gravatt. 2019. Effects of Cold Stratification and Hormones on Seed Germination of *Sarracenia alata*. *Texas Journal of Science* 71(1): Article 7 (On-line).
https://doi.org/10.32011/txjsci_71_1_Article7.
- Kerr, L.D., D.A. Gravatt, and R.J. Wiggers, 2017. "The effects of ultraviolet light on anthocyanin accumulation in the adventitious roots of *Sedum wrightii*," *Annals of Biological Science* 5(3): 1-7.
- Gravatt, D.A. 2016. *Anolis carolinensis* (Green Anole). Perch Site. *Natural History Note*. *Herpetological Review* 47(4): 664-665.

- Choules, L., D.A. Gravatt, S. Kosovich, W. Yuan, W. Ping and R. Havner. 2016. Inhibition of *Enterobacter cloacae* and *Klebsiella oxytoca* by Garlic. *Pharmaceutical Crops* 6:1-12.
- Gravatt, D.A. and M. Mauney. 2005. Eight-year effects of plastic tree shelters on planted bottomland hardwood species. *Texas Journal of Science*. Feb. 57(1) 87-98.
- Wiggers, R.J. and D.A. Gravatt. 2005. Observations on nucleoli of *Meloidogyne* (nematoda) induced giant cell nuclei. *Texas Journal of Microscopy* 36(1) 7-9.
- Gravatt, D.A. and J. Taylor. 2004. Description of asexual reproduction in a Texas succulent *Sedum wrightii* A. Gray. *Sida* 21(2): 943-950.
- Gravatt, D.A. 2003. Crassulacean acid metabolism and survival of asexual propagules of *Sedum wrightii*. *Photosynthetica* 41(3): 449-452.
- Gravatt, D.A. and C.J. Kirby. 1998. Patterns of photosynthesis and starch allocation in seedlings of four bottomland hardwood tree species subjected to flooding. *Tree Physiology* 18:411-417.
- Sword, M.A., J.L. Chambers, D.A. Gravatt, J.D. Haywood and J.P. Barnett. 1998. Ecophysiological Response of Managed Loblolly Pine to Changes in Stand Environment. *In: The Productivity and Sustainability of Southern Forest Ecosystems in a Changing Environment*. Springer-Verlag. pp. 185-206.
- Gravatt, D.A., J.L. Chambers and J.P. Barnett. 1997. Temporal and Spatial Patterns of Net Photosynthesis in 12-year-old Loblolly Pine Five Growing Seasons after Thinning. *Forest Ecology and Management* 97:73-83.
- Sword, M.A., D.A. Gravatt, P.L. Faulkner and J.L. Chambers. 1996. Seasonal branch and fine root growth of juvenile loblolly pine five growing seasons after fertilization. *Tree Physiology* 16:899-904.
- Martin, C.E., D.A. Gravatt and V.L. Loesch. 1994. Crassulacean Acid Metabolism in three species of Commelinaceae. *Annals of Botany* 74:457-463.
- Gravatt, D.A. and C.E. Martin. 1992. Comparative Ecophysiology of Five Species of *Sedum* (Crassulaceae) Under Well-Watered and Drought-Stressed Conditions. *Oecologia* 92:532-541.
- Martin, C.E., D.A. Gravatt and V.L. Loesch. 1991. Photosynthetic responses of three species to acute exposures of nitrate- and sulphate-containing aerosols. *Atmospheric Environment* 26(3):381-391.

PRESENTATIONS

- Wagnon, A., Cross, C.J., Hubbard, K., Gravatt, D. Beverly, L. Early Field Experience Impacts on Rural STEM Teacher Recruiting," AERA Annual Meeting, San Diego. June 2022.
- Cross, C. J. (Presenter), Hubbard, K. E., Wagnon, A. E. (Presenter), Gravatt, D. A., Beverly, L. L., American Education Research Association National Conference 2021, "The metamorphosis of a STEM undergraduate into a STEM teacher: A qualitative case study," American Education Research Association, Online. (April 9, 2021).
- Cross, C. (presenter), K. Hubbard, L. Beverly, D.A. Gravatt and R.L. Darville. 2019. Job Shadow Data: Why is this important and what needs does it fulfill? (Poster). Noyce Summit, American Association for the Advancement of Science, National Science Foundation. Washington, DC. July

10-12.

- Cross, C. (presenter), K. Hubbard, L. Beverly, D.A. Gravatt and R.L. Darville. 2019. The influence of an early intensive field experience on participant's perceptions of STEM teaching. American Educational Research Association National Conference. Toronto, CA. April 2019.
- Hubbard, K.E. (presenter), L.L. Beverly, C.J. Cross, D.A. Gravatt and J.L. Mitchell. 2018. Attracting STEM Majors to Teaching through a Job Shadow (Poster). Washington, D.C. July 16-18.
- Cross, C (presenter), L. Beverly, K.E. Hubbard, D.A. Gravatt and R.L. Darville. 2018. The influence of an early intense field experience on participant's perceptions of STEM teaching (Poster). 2018 Southeast Regional Noyce Conference, Mobile, AL. June 2018.
- Cross, C. (presenter), K. Hubbard, L. Beverly, D.A. Gravatt and R.L. Darville. 2017. Designing a Dynamic Mentoring Network from EPP to Novice Teaching. Noyce Summit, American Association for the Advancement of Science, National Science Foundation. Washington, DC. July 19-21.
- Gravatt, D.A. (presenter), L. Beverly, K. Hubbard, K. Jenlink and C. Cross. 2017. Five Year Findings of the Talented Teachers in Training for Texas (T4) (Poster). Noyce Summit, American Association for the Advancement of Science, National Science Foundation. Washington, DC. July 19-21.
- Cross, C. (presenter), K. Hubbard, L. Beverly, D.A. Gravatt and A. Bay. 2017. The influence of mentoring on the choice of instructional methods of novice Noyce scholar teachers. 2017 Noyce Summit, American Association for the Advancement of Science, National Science Foundation. Washington, DC. July 19-21.
- Frisch, A. (presenter), K. Farrish, M. McBroom, R. Darville, L. Eisenberg, D.A. Gravatt and J. Van Kley. 2016. Physioecological Factors Affecting Mercury Concentration in Giant *Salvinia* at Caddo Lake, Texas. Texas Society for Ecological Restoration. Livingston, TX. November 12.
- Hopkins, K (presenter) and D.A. Gravatt. 2016. 1100-046-Z Photosynthetic Light Response Characterization of *Sarracenia alata* (Poster). American Society of Plant Biology Annual Meeting, Austin, TX. July 9-13.
- Gravatt, D.A. and S. Lias. 2016. A Musical Collaboration between the Departments of Music and Biology (Performance). Bright Ideas Conferences, SFA, Nacogdoches, TX. May 4.
- Jenlink, K. (presenter) L. Beverly, K. Hubbard, D.A. Gravatt and R. Darville. 2015. Embedding University Accountability In: A Clinical Induction Support System for Novice Secondary STEM Teachers. Association of Teacher Educators Annual Summer Meeting. Minneapolis, MN.
- Gravatt, D.A. 2015. A Prototype Chamber to Measure Photosynthesis in *Sarracenia alata* leaves (Poster). American Society of Plant Biology Annual Meeting, Minneapolis, MN. July 25-30.
- Gravatt, D. A. (Presenter & Author), Taylor, J. (Author Only), Edwards, J. (Author Only), Botany 2012, "Identification and Effects of Necrotrophic Fungal Pathogens on Indiangrass (*Sorghastrum nutans*)," (Poster) Botanical Society of America, Columbus, OH. (July 10, 2012).
- Gravatt, D. A. (Author Only), Taylor, J. (Presenter & Author), Edwards, J. (Author Only), 2012 Meeting of the Texas Society for Microscopy, "Identification and Effects of Necrotrophic Fungal Pathogens on Indiangrass (*Sorghastrum nutans*)," (Poster). Texas Society for Microscopy, Fort Worth, TX. (April 13, 2012).
- Kerr, L. D. (Presenter & Author), Gravatt, D. A. (Presenter Only), Wiggers, R. J. (Presenter Only), Botany

- 2011, "The effects of ultraviolet light on anthocyanin accumulation in the adventitious roots of *Sedum wrightii*," (Poster). American Botanical Society, St. Louis. August 2011).
- Gravatt, D.A. and J. Taylor. 2005. Developmental characteristics of asexual propagules of a Texas succulent plant (*Sedum wrightii*). Botanical Society of America Annual Meeting. Austin, TX. Aug 13-17.
- Gravatt, D.A. and J. Taylor. 2005. Developmental and Physiological Characteristics of Asexual Propagules of a Texas Succulent (*Sedum wrightii*). Texas Society of Microscopy. Irving, TX. April 14-16.
- Gravatt, D.A. 2003. Crassulacean Acid Metabolism and Survival of Asexual Propagules in the Texas Desert Rock Outcrop Succulent, *Sedum wrightii* (Crassulaceae). Botanical Society of America Annual Meeting. Mobile, AL. July 26-31.
- Gravatt, D.A. 2003. Vegetative Propagule Success of a Texas Desert Outcrop Succulent, *Sedum wrightii* (Crassulaceae). Texas Academy of Science Annual Meeting. Stephen F. Austin State University, Nacogdoches, TX. February 28.
- Gravatt, D.A. 2000. Invited speaker at Louisiana Tech University, Department of Forestry "Crown Level Response to Thinning in a Loblolly Pine Stand", Ruston, LA. November 2000.
- Gravatt, D.A. and M. Mauney. 1997. Monitoring a reforestation effort at Marked Tree, Arkansas. Society of Wetland Scientists Meeting. Bozeman, MT. June 1-6.
- Gravatt, D.A. 1997. Wetland resources of the United States. Invited keynote speaker for Earth Day activities at Vicksburg High School. Vicksburg, MS.
- Gravatt, D.A. and C.J. Kirby. 1996. Changes in physiological traits of some wetland indicator species in response to soil saturation. Society of Wetland Scientists Meeting, Kansas City, MO. June 9-14.
- Sword, M.A., D.A. Gravatt, P.L. Faulkner and J.L. Chambers. 1995. Seasonal root and branch growth of 13-year-old Loblolly pine five years after thinning. Dynamics of Root Physiological Processes in Woody Roots, Ithaca, NY. October 8-11.
- Gravatt, D.A., J.L. Chambers and J.P. Barnett. 1994. Physiological and morphological adjustments in Loblolly pine as related to changes in stand density and nutrition. North American Forest Biology Workshop, Baton Rouge, LA. June 14-16.
- Gravatt, D.A. 1993. Ecophysiological study of a loblolly pine stand. Seventeenth Southern Forest Tree Physiology Workshop. Mississippi State University, Starkville, MS. June 22-24.

GRANTS AND CONTRACTS

Hubbard, Keith (Principal), Gravatt, Dennis (Co-Principal), Cross, Chrissy (Co-Principal) and Wagon, Amber (Co-Principal). "Talented Teachers in Training for Texas: Expanded" (T4X), Sponsored by National Science Foundation, Federal, \$1,437,990. (September 1, 2021 - Present). This project builds upon the infrastructure of two previous teacher preparation projects supported by the Noyce Program. It is led by Stephen F. Austin State University in partnership with Lone Star College Houston North, in collaboration with Angelina College, Kilgore College, and Tyler Junior College, with Lufkin and Nacogdoches Independent School Districts (both high-need), and with the Region 7 Education Service Center. The project works from a recruiting base of JacksTeach, which is a replication of the nationally recognized UTeach program at Stephen F. Austin State University.

Hubbard, Keith (Principal), Beverly, Lesa (Co-Principal), Gravatt, Dennis (Co-Principal), Cross, Chrissy (Co-Principal), "Collaborative Research: Understanding Robert Noyce Teacher Scholarship Outcomes in Texas" Sponsored by National Science Foundation, Federal, \$49,962. (July 1, 2016 – June 1, 2019). "Collaborative Research" is a Track 4 Noyce award meaning that 8 institutions received simultaneous awards in order to collaborate on research regarding the longitudinal effects of Noyce STEM teacher prep projects.

Beverly, Lesa L (Principal), Hubbard, Keith E (Co-Principal), Gravatt, Dennis (Co-Principal), Cross, Chrissy (Co-Principal), "Talented Teachers in Training for Texas: Phase II" (Funded), Sponsored by National Science Foundation, Federal, \$1,049,935. (July 1, 2015 - Present). Through the Robert Noyce Teacher Scholarship Program, T4 Phase II will award 20 STEM majors who are also pursuing secondary teaching certification a \$14,400 scholarship annually during their junior and senior years. These Scholars will directly impact over 15,000 mathematics and science students in high-needs school districts during their first five years of teaching, and could directly impact 100,000 students over their careers.

Beverly, Lesa L (Principal), Hubbard, Keith E (Co-Principal), Jenlink, Karen (Co-Principal), Gravatt, Dennis A (Co-Principal), "Training Talented Teachers for Texas (T4)" (Funded), Sponsored by National Science Foundation, Federal, \$1,449,995.00. (September 1, 2011 – September 1, 2018). The College of Sciences and Mathematics, in partnership with the SFA STEM Research and Learning Center, the SFA College of Education, Angelina College (AC), and Region 7 Education Service Center launch the Talented Teachers in Training for Texas (T4) initiative. The goals of T4 are two-fold: (1) to increase capacity of STEM teaching majors, and (2) to study the development of a research-based model for strengthening the STEM teacher pipeline that will provide support for STEM teachers, regardless of the remoteness of their location. The project started September 1, 2011 and ends August 31, 2016.

Gravatt, Dennis A (Principal), Photosynthesis of *Sarracenia alata* leaves (Funded). Sponsored by O.R.S.P., Stephen F. Austin State University. \$1,583. (January 13, 2015). Mini-Grant for supplies for constructing gas exchange chambers to measure photosynthesis of pitcher plant leaves.

Gravatt, Dennis A (Principal), "Anthocyanin identification in *Sedum wrightii*" (Funded), Sponsored by O.R.S.P., Stephen F. Austin State University. \$2,700. (February 2010 – May 2011). Mini-Grant for supplies for the extraction of DNA and identification of anthocyanins in *Sedum*.

ONLINE COURSES DEVELOPED/ RETAIN OWNERSHIP

January 2013 – Present

- Developed courses and related materials for delivery online.
- Created content, including text, graphics, and multimedia for learning management systems.
- Monitored courses and collected user feedback and refined material and approaches to course creation.
- Followed course design, format, quality, and version control guidelines.
- Ensured that graphics and animations are optimized for delivery over the web.

BIOL 1106	Biology I for Majors - Lab
BIOL 1306	Biology I for Majors – Lecture
BIOL 1307	Biology II for Majors - Lecture
BIOL 1108	Biology I for Non-majors – Lab
BIOL 1308	Biology I for Non-majors – Lecture
BIOL 2361	Plant Form & Function - Lecture
BIOL 3362	Economic Botany - Lecture

UNDERGRADUATE COURSES TAUGHT

BIO 130	Principles of Cell Biology
BIO 131	Principles of Botany
BIOL 1306/1106	Biology I for Science Majors – Lecture and Lab
BIOL 1308/1108	Biology I for Non-Science Majors – Lecture and Lab
BIOL 2191	Special Problems I
BIOL 2361	Plant Form and Function - Lecture
BIOL 3300	Medicinal Plants
BIOL 3417	Life Science for Middle School – Lecture and Lab
BIOL 3362	Economic Botany
BIOL 4465/4065	Plant Physiology – Lecture and Lab
BIOL 4170	Seminar in Biology
BIOL 4317	Special Problems II

GRADUATE COURSES TAUGHT

BIOL 5465	Advanced Plant Physiology - Lecture and Lab
BIOL 5317	Plant Ecophysiology Lecture
BIOL 5317	Advanced Graduate Studies – 2 sections (Fall 02 & Summer 05)
BIOL 5396	Advanced Graduate Studies – 1 section (Summer 04)

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Botanical Society of America
Botanical Research Institute of Texas
National Association of Science Teachers
Science Teacher Association of Texas
Society of Wetland Scientists
Xi Sigma Pi, Nu Chapter (Secretary/Fiscal Agent 1992-1994)

REFERENCES

Available upon request