

Jeffery Robert Wehr, M.S.S.E.

CONTACT INFORMATION

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EDUCATION

M.S.S.E., Physics and Science Education. Montana State University, Bozeman, MT. August 2003. *"Involving parents using web-based grade reports and assignment schedules on junior high and high school science student achievement"*. Advisors: Prof. G. Francis and Prof. J. Graves.

B.A., Environmental Biology. University of Montana, Missoula, MT. May 1996. *"Comparison of upper thermal tolerance levels of Plecoptera genera in the Clark Fork River and Rattlesnake Creek: Missoula, Montana"*. Advisors: Prof. R. Callaway and Prof. A. Sheldon.

B.A., Zoology; minor: Music Composition. University of Montana, Missoula, MT. June 1992. *"Functional morphology and physiology of bite mechanics in the spiny dogfish shark (*Squalus acanthias*)"*. Advisor: Prof. K. Dial and *"Evidence for echolocation in the vagrant shrew (*Sorex vagrans*)"*. Prof. K.A. Foresman.

PROFESSIONAL EXPERIENCE

- ASR Laboratory – Odessa High School, Odessa, WA (Aug 2013 to present)
Principal Mentor. Science Research and Education.
- CHS – Cedarcrest High School, Duvall, WA (Sept 2012 – June 2013)
Principal Mentor. Science Research and Education.
- ASR Laboratory – Odessa High School, Odessa, WA (Aug 2003 – June 2012)
Principal Mentor. Science Research and Education.
- ASR Laboratory – J-I High School, Joplin, MT (Aug 1998 – June 2003)
Principal Mentor. Science Research and Education.
- MSU-Northern – Montana State University, Havre (Aug 2000 – June 2002)
Science Instructor. Video Conference Graduate Science Course.

COURSES TAUGHT

ASR Laboratory: Odessa High School, Principal Mentor & Instructor:

- *"Honors Physics w/Lab"* SCI400H (Aug 2003-2012, 2013 to present).
- *"Honors Chemistry w/Lab"* SCI300H (Aug 2003-2012, 2013 to present).
- *"Honors Biology w/Lab"* SCI200H (Aug 2003-2012, 2013 to present).
- *"Honors Integrated Sci. w/Lab"* SCI100H (Aug 2003-2012, 2013 to present).
- *"Computer Science & Programming"* SCI600 (Aug 2015 to present).
- *"Advanced STEM Research Lab"* SCI500H (Aug 2003-2012, 2013 to present).
- *"Earth Science w/Lab"* SCI8TH (Aug 2013-2015).

CHS Laboratory: Cedarcrest High School, Principal Mentor & Instructor:

- *"Biology w/Lab"* SCI201/04 (Sept 2012 - June 2013).
- *"Honors Physical Science w/Lab"* SCI120H/01-02 (Sept 2012 - June 2013).
- *"Physical Science w/Lab"* SCI120/03,05 (Sept 2012 - June 2013).

ASR Laboratory: J-I High School, Principal Mentor & Instructor:

- *"Honors Physics w/Lab"* SCI400H/01 (Aug 1998 – June 2003).
- *"Honors Chemistry w/Lab"* SCI300H/02 (Aug 1998 – June 2003).
- *"Honors Biology w/Lab"* SCI200H/04 (Aug 1998 – June 2003).
- *"Advanced STEM Research Lab"* SCI500H/06 (Aug 1998 – June 2003).

**CURRENT
ASR LABORATORY
STUDENTS
MENTORED**

- Elizabeth Larson – Computer Science, 3rd year
 - Cole Kissler –Renewable Energy, 3rd year
 - Chance Messer –Engineering, 3rd year
 - Kiegan Wehr – Environmental Conservation, 2nd year
 - Arianna German – Behavioral Sciences – 1st year
 - Destiny German – Behavioral Sciences – 1st year
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**SERVICE PROVIDED
TO INSTITUTE
(ODESSA HS)**

- ASR Laboratory, Principal Mentor, Odessa, (2003-present).
 - WA Teacher Advisory Council, OSPI, Olympia, (2015-present).
 - WA Science Teacher Association Region 1 Director, (2016-present).
 - WA State Science Leadership Committee, OSPI, Olympia, (2013-present).
 - Odessa Chess Club Advisor, Odessa, (2003-present).
 - Site Council for Odessa High School Educators, Odessa, (2006-present).
 - Student Improvement Plan Committee, Odessa, (2006-present).
 - Technology Administrator, Odessa, (2008-present).
 - WA State Biology End of Course Cut Score Committee, Seattle, (2012-2013).
 - Navigation 101 Mentor, Odessa, (2009-2012).
 - Math / Science Fieldtrip Coordinator, Seattle, (2003-2010).
 - WASL HS Science Scorer, Pearson Educational Services, Auburn, (2006-2007).
 - Electronic Mentoring for Student Success (eMSS) Project, NSTA, (2006-2007).
 - Digital Learning Commons Online Mentor, Odessa, (2003-2007).
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**MAJOR HONORS
AND AWARDS**

- Presidential Award for Excellence in Mathematics and Science Teaching, Office of the President of the United States, Washington D.C., 2016.
 - Science Teacher of the Year, Washington State Science & Engineering Fair, Bremerton, WA, 2016.
 - Science Teacher of the Year, Washington State Science Teachers Association, NSTA Conference, Portland, OR, 2016.
 - Presidential Award for Excellence in Mathematics and Science Teaching, WA State Finalist, Olympia, WA, 2015.
 - American Jr. Academy of Science, Recognition of Excellence in the Support of Superior Scientific Research, Chicago, IL, 2014.
 - International Sustainable World (Energy, Engineering, Environment) Project Olympiad Award, Recognition for Excellence in STEM Research, Houston, TX, 2012, 2014, 2016.
 - “Highly Qualified Teacher”, No Child Left Behind Act, WA, 2004 - 2015.
 - National Jr. Science & Humanities STEM Research Award, Concord, NH, 2012.
 - American Jr. Academy of Science, Recognition of Excellence in the Support of Superior Scientific Research, Vancouver, Canada, 2012.
 - National Jr. Science & Humanities Symposium, Recognition of Excellence in Maintaining Scientific Research, Bethesda, MA, 2007, 2011, 2012.
 - Siemens STEM Academy STARs Research Program, Oak Ridge National Laboratory, Oak Ridge, TN, 2012.
 - Teacher of the Year (Regional ESD 101), State of Washington, 2011.
 - National Siemens Founders Award for Student STEM Research, Washington D.C., 2011.
 - Letter of Educational Commendation, Governor Christine Gregoire, WA, 2010.
 - Department of Education: American Star of Teaching Award; State of Washington, 2008.
 - Letter of Congressional Commendation, Congresswoman Cathy McMorris Rogers, Washington D.C., 2008.
 - School Of Distinction Award, State of Washington, 2008; 2011.
 - Distinguished Service to Science Education Award, Montana Science Teachers Association, 2003.
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ACADEMIC SERVICE AND ACTIVITIES

CO-ORGANIZER:

- BCSC – Bi-County STEM Challenge, Regional STEM Collaboration, Odessa, WA, 2009-present.
- NMSEF – Northern Montana Science & Engineering Fair Director, Havre, MT, 2002-2003.

PANELIST:

- SSP, STEM Teacher Research Conference Panelist & Presenter, Washington, DC, 2016.
- Stanford University, Center to Support Excellence in Teaching Panel, Stanford, CA, 2012.
- WSDA, STEM Alignment Consultant & Panelist, Seattle, WA, 2011.
- GTCC, Golden Triangle Curriculum Committee, Science Review Panel, Shelby, MT, 1998-2003.
- NSTA, Building a Presence in Science Panel, Bozeman, MT, 2002, 2003.
- TQ², Teacher Quality Squared Mentor for Early Career Science Panel, Santa Cruz, CA, 2002.

FOUNDER:

- Advanced STEM Research Laboratory, Odessa, WA, 2003-present.
- OHS STEMposium & Family Science Fun Night, Odessa, WA, 2013-present.
- Advanced Science Research Laboratory, Joplin, MT, 1998-2003.

GRANTS:

- NW Professional Educators Grant Recipient, STEM Research Development, WA, 2016.
- MCSEF Mini-Grant Recipient, STEM Research & Education, WA, 2011, 2013-2016.
- WSSEF Grant Recipient, STEM Research & Education, WA, 2012, 2013-2016.
- NE Washington Education Council Grant Recipient, STEM Research Development, WA, 2014.
- Riverview Educational Foundation, STEM Research & Education, WA, 2013.
- Parent Teacher Student Association, STEM Research & Education, WA, 2013.
- Co-Grant Recipient from Educational Service District-101, STEM/History, WA, 2007.
- Seattle Biomedical Research Institute, STEM Research, WA, 2006.

SELECTED CONFERENCE PRESENTATIONS & KEYNOTES

- WASA – WA Association of School Administrators Conference, Yakima, WA, 2012, 2016.
- WSTA – WA State Science Teachers Association Conference, Seattle, WA, 2012, 2016.
- ASA/NEWESD101 - Outstanding Teacher's Forum, Spokane, WA, 2012, 2014.
- SBITech – Saxton Bradley Summer Tech Conference, Seattle, WA, 2011.

PROFESSIONAL MEMBERSHIPS

- AAAS – American Association for the Advancement of Science
- NSTA / WSTA – National Science Teachers Association, Washington Science Teachers Association
- NWPE – Northwest Professional Educators / Association of American Educators
- SigmaXi - The Scientific Research Society
- SSP – Society for Science and the Public

ASR LABORATORY RESEARCH COLLABORATORS

- Boechler, N., Department of Mechanical Engineering, UW, 2013-2014.
- Bogenschutz, N., Fred Hutchinson Cancer Research Center, WA, 2010-2012.
- Darario, C., Mechanics & Materials, CalTech & ETH, Zurich, 2010-2013.
- Evans, B., Special Projects: Chemistry Division, ORNL, 2012-1013.
- Ganse, A., Applied Physics Laboratory, UW, 2013-2014.
- Hill, H., Department of Chemistry, WSU-Pullman, 2006-2008.
- Krueger, J., Integrative Physiology & Neuroscience, WSU-Spokane, 2012-2014.
- Pasquina, L., Journal of Emerging Investigators, Harvard GSAS, 2014.
- Rose, S., Department of Physics & Astronomy, WSU-Pullman, 2005-2006.
- Thrall, K., Radiological & Nuclear Threat Research, PNNL, 2006-2008.
- Wall, D., Nuclear Radiation Center, WSU-Pullman, 2008-2010, 2013-2016.
- Weiser, M., Department of Mechanical Engineering, EWU-Cheney, 2014.
- Wiggins, R., Chronicle of the New Researcher, Sigma Xi, 2014.
- Zhang, X., Chemical Engineering / Bioengineering, WSU-Tri Cities, 2013-2014.

PUBLICATIONS

REFEREED JOURNAL

1. Wehr TM & Wehr JR (2014) "*Focusing sound waves using a two-dimensional non-linear system*" Journal of Emerging Investigators, July Issue: pp. 1-6.

PRINCIPAL MENTOR OVER MAJOR STUDENT RESEARCH

2. Brightwell, JM (2016) "The comparison of a liquid hydrogen fueled rocket to a butane fueled rocket to determine efficiency." Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 9.
3. Lesser, SR (2016) "Mount St. Helens ash used as a temporal marker for radioactive cesium-137 fallout." Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 16.
4. Wehr TM (2015) "*The design and analysis of a quaternary data storage system*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 10.
5. Larson EM (2015) "*The effect of sunglasses on ocular exposure to ultraviolet radiation*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 14.
6. Kissler CW (2015) "*Engineering an aluminum-cone studded solar panel to increase electrical output*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 6.
7. Messer CD (2015) "*Engineering recycled plastic / sawdust composite lumber*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 6.
8. Wehr TM (2014) "*The generation and analysis of waves with varying nonlinearity through a one-dimensional chain of spheres*" Chronicle of The New Researcher: (1) 1, pp. 27-34.
9. Boss, AN (2014) "*Analyzing retinal vascular tortuosity in fundus photography as an indicator for health*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 13.
10. Lesser, SR (2014) "*Transgene Interleukin-37b aiding memory consolidation due to sleep disruption*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 16.
11. Powell, KE (2012) "*The development of a novel sodium polyacrylate seed treatment*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 19.
12. Wehr, TM (2012) "*Focusing sound waves using a nonlinear acoustic lens*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 31.
13. Powell, KE (2011) "*The use of sodium polyacrylate to increase crop production in dry-land farming*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 37.
14. Schmierer, AJ (2011) "*The effect of genetically modified canola seed (*Brassica napus*) on the pH level of soil*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 9.
15. Heimbigner, JA (2010) "*Preparation and purification of Tc-99m by multifunctional ion exchange chromatography*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 22.
16. Smith, KB, Paris RJ (2010) "*The effect of microwave radiation on *Drosophila melenogaster* fertility*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 17.
17. Wehr, TM (2010) "*Generating electricity through induction using a magnetic field to power a pendulum*" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 18.

18. Braun, MC (2009) "Analyzing horse (*Equus*) coat color of eumelanin and pheomelanin using spectrophotometry" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 18.
19. Greenwalt, MR (2008) "Comparison of crested-wheatgrass (*Agropyron cristatum*) and soft white winter wheat (*Triticum aestivum*) in annually cultivated soil" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 17.
20. Null, AR (2008) "Engineering a catalytic converter for a 200 cc four stroke engine", Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 15.
21. Paris RJ (2008) "The effect of homeopathic insect repellent using sagebrush (*Artemisia tridentate*) on mosquitoes (*Culex* sp.)" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 13.
22. Read, AR (2008) "Design and development of a non-Newtonian fluid filled ballistic vest" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 11.
23. Smith, KB (2008) "Improving Long-Term Memory by Integrating Stimulated Olfactory Receptors" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 12.
24. Walter, JR (2008) "Carbon sequestration: the difference between carbon inputs in farmed-tilled soil and non-farmed soil" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 10.
25. Lyons, WC (2007) "The extraction of glycerides from *Artemisia cana* [sagebrush] to produce quality biodiesel" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 14.
26. Mendoza, PC (2007) "The effect of age on the rate of language acquisition" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 31.
27. Null, AR (2007) "Engineering a crushing sleeve staging mechanism for a three stage hydro-powered rocket" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 7.
28. Allen, JP (2006) "A comparison of aerodynamic drag due to turbulent flow between a regular golf ball and a ball with a square dimple pattern" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 6.
29. Fisher, KR (2006) "The effects of conservation reserve program approved grasses on eradicating *Pythium* Root Rot (*Pythium abapressorium*)" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 9.
30. Walter, CC (2006) "Metabolite analysis as an indicator for decabromodiphenyl ether exposure using mass spectrometry" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 14.
31. Allen, ME (2005) "Setting an upward bound on the strength of gravitational waves using the stochastic code and injected omega signals" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 14.
32. Jasman, JA (2005) "The effect of terpenoids extracted from sweet oranges (*Citrus sinensis*) in the cellular growth rate of tomato plants (*Lycopersicon esculentum*)" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 17.
33. Kuch, AR (2005) "Correlation between magnitudes of accretion structures from massive black holes within active galactic nuclei and dimensions of jet stream pulsions" Advanced STEM Research Laboratory, Odessa High School, Odessa, WA, pp. 21.

34. Lybeck, LF (2003) *"The rate of infestation of parasitoids (Bracon cephi) and wheat stem sawfly (Cephus cinctus) on spring wheat compared to barley"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 19.
35. Moss, AM (2003) *"The effect of a mimetic sugar (2-deoxy D-ribose) in fruit flies (Drosophila melanogaster) to increase longevity"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 12.
36. Pimley, BJ (2003) *"Harnessing electrical energy from the kinetic energy of surface water flow"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 9.
37. Ramberg, ZC (2002) *"The construction and comparison of the structural integrity and cost efficiency between standard and experimental framework design"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 8.
38. Cady, JE (2002) *"Acoustic levitation produced by audible sound waves"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 15.
39. Lybeck, LF (2002) *"A comparison of thyroid cancer rates between Montana and the United States as a result of radiation fallout (Iodine-131)"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 16.
40. Bangs, JT (2001) *"Acetylsalicylic acid's effects on jasmonic acid formation in McNeal spring wheat (Triticum aestivum)"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 7.
41. Jochim, AA (2001) *"Impact of elevated carbon dioxide on water-use efficiency of wheat"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 10.
42. Tung, VF (2001) *"Effect of mass on the gliding ability of paper airplanes"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 8.
43. Jochim, AA (2000) *"Fingerprint analysis as an indicator for genetic relationship"* Advanced Science Research Laboratory, Joplin-Inverness High School, Joplin, MT, pp. 11.

BOOK CHAPTERS

"The Valedictorian's Dilemma" Wehr, J., Chapter 1 of the book "From Seed to Apple" Office of Superintendent of Public Instruction, Olympia, WA, 2011.

"Modele: An Electron Configuration Experience" Wehr, J., Chapter 14 of the book "More Best Practices for High School Classrooms: What Award-Winning Teachers Do" Author: R Stone, Corwin Press, CA, 2010.

"Remote Sensing" Wehr, J., Chapter 15 of the book "More Best Practices for High School Classrooms: What Award-Winning Teachers Do" Author: R Stone, Corwin Press, CA, 2010.

ONLINE CHAPTERS

"Producers, Analysts, and Ranchers" Wehr, J., WA State Department of Agriculture: Feed and Food Safety In a Global Environment, <http://agr.wa.gov/FoodAnimal/AnimalFeed/InstructionModulesHighschools.aspx>, 2012.

"Systems Approach to Feed Safety" Wehr, J., WA State Department of Agriculture: Feed and Food Safety In a Global Environment, <http://agr.wa.gov/FoodAnimal/AnimalFeed/InstructionModulesHighschools.aspx>, 2012.
