



Program Portfolio
Geology
10-11

Description of Program

The Eastern Oregon University Geology Program offers 14 courses for students seeking to fulfill the Physical Sciences core of Eastern's general education requirements. These general education offerings include courses required for students pursuing licensure in middle school and secondary teaching; for the Environmental Studies concentration at Eastern Oregon University; and for students pursuing the Natural Resources and Rangeland Ecology and Wildlife Management degrees and options in the Environmental Economics, Policy and Management (EPPM) and the Natural Resources interdisciplinary programs offered by the OSU Agriculture program at Eastern. We also teach two courses on geographic information systems (GIS), a very important skill that students in a wide range of disciplines need to compete in today's job market.

Our lower division geology courses provide the background students wanting to major in geology need to transfer at the end of their sophomore year to larger universities that offer a major in geology. We teach a wide range of upper division geology courses designed for students pursuing careers earth science teaching or continuing on toward M.S. and PhD degrees in geology or jobs in geological fields. We emphasize hands-on, field-oriented projects that give our students an in-depth knowledge of the area we live in and the skills they need to decipher its geologic history .

We offer a minor in geology which students who desire to pursue geology in graduate school and as a career often combine with another minor (Geography, Anthropology, Art) for a Liberal Studies degree. The minor requires a minimum of 30 graded credits in geology including GEOL 201, 202, and 203 and a minimum of 15-upper division (300-400) credits in geology including at least one 400-level course.

How the Geology Program serves the Mission of the University and needs of the region

Our geology courses provide a basis for understanding Earth's geological phenomena for all who enjoy the out-of-doors. The lower division courses fulfill the general education natural science requirements for non-science majors and they provide complimentary background for other program areas—The Natural Sciences, Physical Anthropology, Geography and Land Use Planning, Forestry and Agriculture, Education, Environmental Science. Our upper division courses give students wishing to pursue geology as a career a strong background in the fundamentals of geology which makes it possible for them to successfully pursue undergraduate and advanced geology degrees at other institutions.

Many of our upper division students use their geology minors to fulfill part of the requirements of their Liberal Studies degree programs.

Our on-campus 100-level courses focus on “hot topics in geology” (plate tectonics, dinosaurs, global warming, etc.), environmental geology, and the geologic history of the Oregon coast, while our distance education offerings include classes on gold mining in Eastern Oregon, earthquakes and volcanoes, and field studies of some of the outstanding geological sites in Oregon. Students in our 200-level Physical and Historical Geology courses learn the knowledge and techniques they need to decipher the geologic history of the Wallowas, the Grande Ronde Valley, and the John Day area, and also participate in an important new fossil dig in the Baker City area. We offer a wide range of upper division courses. New courses for 2007-2008 include *Introduction to GIS* and *GIS and Geoforensics*

Mining has played a prominent role in the history and economy of Eastern Oregon and topics such as earthquakes and groundwater are also important to the region. Our faculty regularly provides information to residents, government agencies and newspapers about these issues and we identify rocks, minerals, and fossils for people in the area and give presentations to local school groups and civic organizations. The Wallowa County Sheriff’s Office recently asked for a copy of our chart of the floor of Wallowa Lake for use in possible searches for drowning victims.



Piston coring on Wallowa Lake with a crew from the University of Alaska and the University of Minnesota. Photo by former EOU president, David Gilbert.

Recent Programmatic Changes

The biggest change over the past five years in the EOU geology program is the addition of Henrietta Laustsen to our staff and the expansion of our GIS offerings thanks to her expertise in this field. Henrietta's Introduction to GIS this past year featured a hands-on project that gave students the chance to map out the topography, geology, biology, and other features of a farm near Summerville. Henrietta has also taken over teaching the Science 100-level series on-campus. Kendall Baxter has added a new course on the geology of the Grande Ronde Valley to his DDE course offerings. We have also incorporated new material into our Physical Geology, Historical Geology, and Paleontology courses to take advantage of the exciting discovery of Ice Age mammoth, bear, bison, and ground squirrel fossils in the Grande Ronde Valley in January 2010.

Appendix 2. Geology Program Learning Outcomes (PLOs)

Course Levels	Benchmark/ Expected Standard of Performance	1 Content Knowledge (courses required of all minors)	2 LO: Applied Learning (course required of all minors)	3 LO: Inquiry and Integrated Learning (course required of all minors)	4 LO: Communication (course required of all minors)	5 LO: (course required of all minors)
	<i>Program sets benchmark</i>	<i>85% Proficient/Adequate</i>	<i>85% Proficient/Adequate</i>	<i>85% Proficient/Adequate</i>	<i>85% Proficient/Adequate</i>	
400-Level	Students take 15 u.d. geology credits, including at least one 400-level course. No specific courses are required.	Varies depending on course.	Varies depending on course.	Varies depending on course.	Varies depending on course.	
300-Level		Varies depending on course.	Varies depending on course.	Varies depending on course.	Varies depending on course.	
200-Level		GEOL 201, 202, 203	GEOL 201, 202, 203	GEOL 201, 202, 203	GEOL 201, 202, 203	
100-Level						

II. Program Objectives/Outcomes

Students receiving a minor in Geology will learn:

- **Content Knowledge:** identification of rocks, minerals, soils and fossils;
- **Applied Learning:** use of topographic and geologic maps, air and satellite photos, radar and digital images; making geologic measurements (describing outcrops, measuring strike and dip, taking notes, etc.) in the field, in the laboratory, and in class;
- **Inquiry and Integrated Learning:** through individual research projects;
- **Communication:** will be able to present the results of their investigation orally, in writing and in poster form.

II. Four-Year Assessment Cycle:

Year	Outcome to be Assessed
2010-2011	Content
2011-2012	Applied Learning
2012-2013	Inquiry
2013-2014	Communication

III. Curriculum Assessment Plan

Year	Outcome	Course/Milestone Activity	Assignment/ Task (done by students)	Assessment Tool (to measure outcome)	Standards/Levels of Achievement
2010-2011	Content	Geol 201	Boulder Park project	Poster	88%

Degree Program Outcomes Assessment

Fall 2010

Degree Program: Geology

Outcome Assessed: Critical Thinking—Program and GEC

Course / Activity: GEOL 102

Summary of Assessment Results

Performance Criteria	Assessment Method	Measurement Scale	Minimum Accepted Performance on criteria overall	Results
1. Identifies and explains issues	Rubric	1-3	85% at 2 or 3	85.3%
2. Recognizes contexts and assumptions				
3. Acknowledges multiple perspectives				
4. Evaluates evidence to reach conclusions				

Note: See "Supporting Documentation" tab or for detailed records of the summary. The assessment representative for each department must archive supporting student samples

Explanation of Assignment / Activity / Prompt

This exercise gives the students an opportunity to see what it is like to be involved in a court case involving a chemical waste spill like the case they watched in "A Civil Action." The difference is that this involves a real spill here in La Grande that has been the subject of extensive litigation in the past. Although the specific case is imaginary, it could happen.

Assignment: Now that you've watched "A Civil Action," you are ready to participate in a hypothetical trial in which the plaintiff, a La Grande resident who lives just north of the La Grande railroad yard, alleges that diesel fuel from the Union Pacific Railroad locomotives has moved northward into the basement under her house, causing her stomach and bladder cancer. She is asking for damages for pain and suffering as well as the decreased value of her house. This case has moved up the court system and is being heard by a panel of judges. Your job is to sign up to be on: 1) The plaintiff's team, 2) The defendant's team, or 3) The panel of judges. The plaintiff's and defendant's teams will each prepare a brief to be submitted to the court prior to the trial and will present their evidence to the court. The panel of judges will listen to the arguments from both sides and write out a thoughtful and insightful decision on the case, making it clear why the decision was made.

You can use your "Diesel Dollars" to purchase additional data besides the information that is provided with this exercise. Your grade will be based on the time and effort you put into: 1) Researching and preparing your brief (or your written decision if you are a judge), 2) Your

presentation in the “court”, 3) The evaluations submitted by your classmates after we have finished the exercise, and 4) Your self-evaluation and suggestions on how to make this a better project the next time we try it.

Analysis of Assessment Results

The students got emotionally involved in this exercise and put in a lot of effort preparing the cases they submitted to the court. Cross-examination of witnesses was pointed and incisive. The judges took their job very seriously and made a thoughtful and incisive decision. Many of the students were surprised because they had initially assumed that “Jane Doe’s” cancer was caused by the railroad diesel spill, but this proved very difficult to prove. What did they learn? “Not everything is as simple as it looks. Especially not groundwater.” “That truth is really hard to get to in a court case.” “There are many things to consider when it comes to a lawsuit with a big company.” “Specific and backed-up evidence will win a case.” “Meticulous research and looking at the smaller parts of the case can make a big difference.” “Diesel fuel can cause cancer; defending a case can get wild!” “That all cases that seem fair are fair when you start to look at the evidence.” “That you should come very prepared if you are in a trial.” “How geology and geological evidence can play a huge part in resolving cases.”

Closing the Loop: Strengths, Weaknesses, Conclusions, Recommendations

The students learned that environmental problems like the ones they see in the news and in movies can happen here right where they live. This was the first time I have attempted a role-playing exercise in GEOL 102. It worked very well, so I plan to do it again, incorporating the suggestions for improvement mentioned above. The final exam this year will build on this exercise by bringing home the recent discovery that the spill made famous in the movie Erin Brockovich is still spreading and causing more health problems for the people in the area. How could this happen? Could it happen here in La Grande? What should be done to make sure that it doesn’t?



Jay Van Tassell and EOU student Ashley Cogburn work on one of the mammoth tusks recently found in the Grande Ronde Valley (Photo by Laura Hancock).

Faculty



Henrietta Laustsen and Bill Nye, the science guy, at a recent National Science Teachers conference.

Kendall Baxter retired from Eastern in 1988, but continues to teach a wide range of very popular courses through Distance Ed, including *Earthquakes and Volcanoes*, *Gold Mining in Eastern Oregon*, *Geology of the Grande Ronde Valley*, *Geology of the Wallowas*, *Geology of the John Day Country*, *Geology of the Columbia Gorge*, and *Geology of the Oregon Coast*. Ken also teaches Science courses in astronomy. The health center in Union is named after him.

Mark Ferns, who recently retired from the Oregon Department of Geology and Mineral Industries, is looking forward to playing a more active role as an adjunct professor of geology at Eastern. Mark is the top expert on the geology of Eastern Oregon. His map of the Upper Grande Ronde River Basin was recently highlighted as an outstanding example of GIS by ESRI. Mark keeps busy helping geologists from all over the country who want to study the geology of Eastern Oregon.

Henrietta Laustsen started teaching *Introduction to GIS* on-campus in September 2007 and also offers a *GIS and Geoforensics* course via Distance Ed. She also teaches the on-campus Science 100 series.

Jay Van Tassell began teaching at Eastern Oregon University in 1988. He teaches a wide range of on-campus courses as well as supervising senior theses and other projects. Jay and his students have had fun studying the geologic history and fossils of the Grande Ronde and Powder Valleys and mapping the bathymetry of Wallowa Lake. Their work is featured in the books *Oregon Fossils* and *In Search of Ancient Oregon*. The mammoth, bear, bison, and ground squirrel fossils found in the Grande Ronde Valley in 2010 were featured by every major newspaper in the United States, on Oregon Public Broadcasting, and in the Eastern Oregon Alumni Magazine. Jay edits our on-line journal, *Eastern Oregon Geology* and advises our geology club, Phi Beta Rock.

Undergraduate Student Research



EOU student Abby Wicks examines the Miocene fossil clams exposed on the shore south of Beverly Beach on the winter 2011 Paleontology class field trip to the Newport area.

One of our main goals is to get our students involved in field projects and publishing their results in scientific journals. In Fall 2010 our Physical Geology class discovered a new fossil outcrop on Eagle Creek in the Wallowa Mountains. When our Winter 2011 Paleontology class analyzed the samples from the fall, they discovered a genus of bivalve (*Otapiria*) that had previously never been found in the lower 48 states. Our studies at the Pliocene Always Welcome Inn fossil site in Baker City have followed the same pattern. First, our Structural Geology class mapped the faults in the sequence and then our Sedimentology/Stratigraphy class mapped the stratigraphic sequence. Over the past 9 years our Historical Geology classes, with help from paleontologists across the country and the students from other universities and from Pine-Eagle High School in Halfway, have discovered a new species of sunfish and a new genus of minnow at the site, along with many other fossils. Misty Bork, who studied the voles from the site for her senior thesis, helped unravel the migration of small mammals westward from Lake Idaho to the Columbia River drainage. Another student, Carli Morris, discovered a new species of plant living on an eroded Pleistocene alluvial fan in Idaho. A poster delivered by Eric Bergey on his thesis research on a very unusual (basanite) volcano near Mt. Fanny won the outstanding student geology poster award at a recent American Association for the Advancement of Science (AAAS) in Hawaii. Theses in progress in 2011 include a FEMA-funded project by Deb Chandler in which she is evaluating the hazards on the Eastern Oregon University campus.

EOU geology students have authored numerous publications and given many presentations on the geologic history of our area at professional meetings (Appendix 1).

For more on EOU geology student research, see:

<http://www.eou.edu/~geology/easternoregongeology.html>

Phi Beta Rock: The EOU Geology Club

The Eastern Geology Club travels to great geology spots every year to give papers at professional meetings and tour the geologic sites in the area. Our last trip (2009) took us to the glaciated Precambrian rocks of Kelowna, British Columbia. Past trips have visited the Big Island of Hawaii (1997, 2001, 2008); Grand Canyon National Park, Sunset Crater, Walnut Canyon, and Wupatki National Monument (1998); Glacier National Park (1999); Craters of the Moon and Yellowstone (2000); Crater Lake and the southern Oregon coast (2002, 2004); Puerto Vallarta, Mexico (2003); Colorado National Monument, Canyonlands, Arches, Dinosaur National Park, and the Black Canyon of the Gunnison in Colorado (2005); Prince William Sound, Earthquake Park, Matanuska Glacier, and Denali National Park in Alaska (2006); Snow Canyon, Bryce Canyon, and Zion Canyon in Utah (2007), and Kelowna, B.C. (2009). This year (2011) we plan to travel to Logan, Utah, to present a paper on our new Ice Age fossils from the Grande Ronde Valley and to visit Fossil Butte, Timpanagos Cave National Monument, and other geologic sites in the area.

The geology club is also active presenting programs on geology to school children and other groups. The club helped build the playground at Riverside Park and has sponsored several cleanup days at La Grande's Morgan Lake recreation area.



The 2009 Phi Beta Rock club members (from left to right, Corby Weyhmiller, Allison Kuenzli, Kelsey Swanson, Candice Burnette, Bryan Grimshaw and Russ Waisanen) shows off their samples of the rare bivalve *Luphrerella* in front of their poster at the Geological Society of America meeting in Kelowna, British Columbia.

For more on our Phi Beta Rock trips, please see:
<http://www.eou.edu/~geology/PhiBetaRock.html>

Outreach



Jay Van Tassell shows the vertebrae of a short-faced bear recently found in the Grande Ronde Valley to a group of students from a local elementary school (Photo by Laura Hancock).

Our latest outreach efforts center on our new Ice Age fossils. Groups of all ages of all ages have come to see the fossils and share in the excitement of their discovery. Some of the fossils recently traveled to Portland, where they were featured in a talk Jay Van Tassell delivered to the Geological Society of the Oregon Country, the oldest geological society in the state of Oregon.

The outreach efforts of the EOU geology program take many other forms. These include joint field trips with Lewis and Clark College, Blue Mountain Community College, Whitman College, and Southern Oregon University. This coming summer we will be helping Boise State University design a new geophysics field camp in the Ontario area and help the University of Wisconsin run a seismic profile from Prairie City, Oregon, to Challis, Idaho. We are helping Whitman College develop a summer research experience for students that is sponsored by NSF. We have had close relationships with the Oregon Department of Transportation and the Oregon Department of Geology and Mineral Industries for many years and have recently helped them out by analyzing samples for them with our new x-ray diffractometer.

We are very proud of our “Bringing the Classroom to the Geology” program, which was initiated by Story Miller, Eastern Oregon University’s 2007 President’s Scholar, and has continued every year since then. The Pine-Eagle students' fossil finds at the Always Welcome Inn include the complete lower left jaw of the beaver *Castor californicus*, a large bird bone, and a vole tooth that was recently featured on the web page of NEOMAP (Neogene Mapping Project), an organization that is based at the University of California at Berkeley, one of the top paleontology centers in the world. Many groups have visited the Always Welcome Inn site since it was discovered, including the field paleontology class from Lewis and Clark State College, the Geological Society of the Oregon Country, and the Baker City Presbyterian Church. A professor from the University of Utah stopped by the site after reading about it on the

web and discovered that the ash at the Always Welcome Inn came from a 4.45 million year-old supervolcano in Idaho west of Yellowstone. This summer Jay Van Tassell will lead a group from the Idaho Museum of Mining in Boise on a hunt for fossils at the Always Welcome Inn and a tour of the glacial features in the Anthony Lakes area.

Our geology faculty regularly identifies rocks, minerals, and fossils for people in the area, give presentations to local school groups and civic organizations, and provide information on the geology and geologic history of the area to local citizens and newspapers. We also help well drillers in the Grande Ronde Valley identify well cuttings. The Wallowa County Sheriff's Office asked for a copy of our chart of the floor of Wallowa Lake for use in searches for drowning victims. Jay Van Tassell recently helped a woman from Hermiston whose family has uranium poisoning connect with one of our alumnae who works at a geological firm that could analyze the soil and groundwater at the woman's home.



Our Winter 2011 GEOL 202 class poses in the snow at Anthony Lakes with Gunsight Mountain in the background.

Alumni Accomplishments



NOAA Teacher at Sea and EOU geology alumna Story Miller on the NOAA ship **Oscar Dyson**, Summer 2010. Story created a blog on her experiences at sea for her students in Dutch Harbor, Alaska. Story's next adventure is to go to Italy, where she will teach English at an elementary school and learn Italian.

We are proud of the accomplishments of our alumni who have succeeded in graduate school. Four of our graduates have gone on to complete M.S. degrees in geology at Boise State University, the University of Idaho, and the State University of New York at Buffalo. One is currently pursuing her Ph.D. in geology at Buffalo. Another student completed her M.S. in Resource Management, helped excavate the Wenas Creek mammoth near Selah, Washington, and earned her Ph.D. in Anthropology at the University of Edinburgh. Another former student finished a degree in surveying at Oregon Institute of Technology. We also have 3 former students who are currently majoring in geology at Oregon State, the University of Wyoming, and the University of Nevada at Reno.

Education is the most popular career for our graduates, who are now teaching in La Grande, Union, Milton-Freewater, Boardman, Prairie City, and Astoria here in Oregon, as well as in Idaho, California, Arizona, Wyoming, California, Alaska and Hawaii. One student is teaching history at Utah Valley State College. Two of our graduates have won awards for their outstanding science teaching. Another graduate is pursuing a degree in higher education administration at the University of Minnesota in St. Cloud.

Two of our graduates are now working for mining firms in Nevada and another works in the geology department at the Kensington gold mine near Juneau, Alaska. Three other graduates work for environmental consulting firms in Boise, the Tri-Cities, and in South Dakota. One student works with a firm in South Dakota that specializes in Archaeology, Paleontology, and GIS and another is the GIS coordinator for Harney County. Another student is employed by the Oregon State Crime Laboratory.

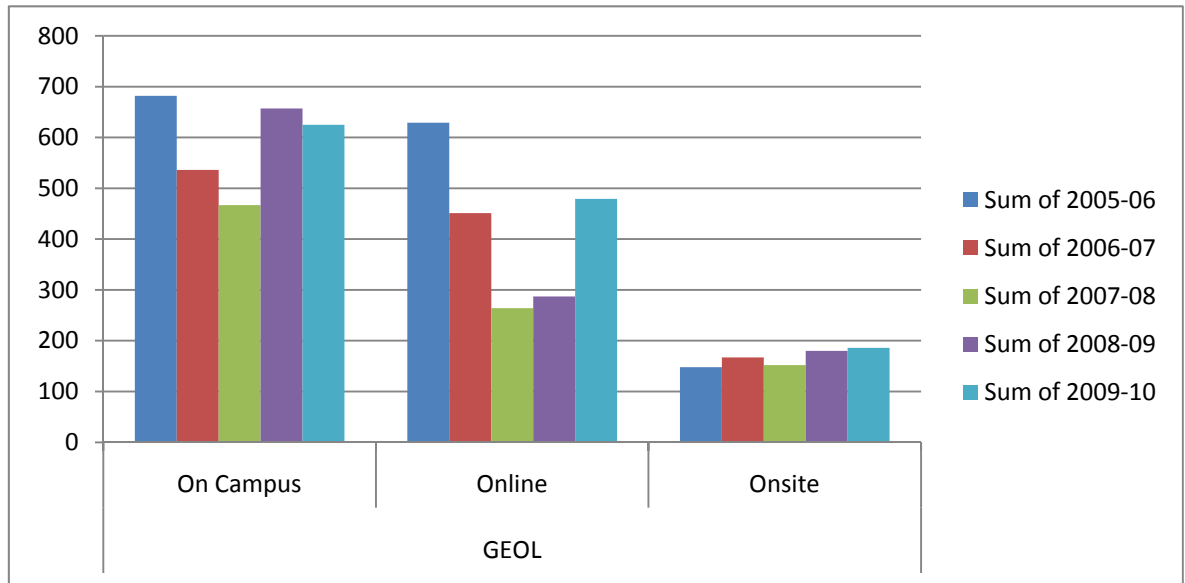
For more information on our geology alumni, please see:

<http://www.eou.edu/~geology/Alumni.html>

Enrollments

Enrollments in EOU geology classes have tripled in the last five years. Part of this is due to adding Henrietta Laustsen to the Geology faculty but there have also been large increases in the sizes of enrollments in the sizes of the DDE and on-site classes taught by Kendall Baxter and a significant increase in the sizes of the on-campus classes taught by Jay Van Tassell. Our lower division on-campus classes are full and our upper division classes have some of the largest enrollments in a decade. The number of students on track to complete their geology minors at EOU is also much higher than it was five years ago.

		Data				
Prefix	Campus	Sum of 05-06	Sum of 06-07	Sum of 07-08	Sum of 08-09	Sum of 09-10
GEOL	On Campus	682	536	467	657	625
	Online	629	451	264	287	479
	Onsite	148	167	152	180	186
GEOL Total		1459	1154	883	1124	1290
Grand Total		1459	1154	883	1124	1290



STUDENT CREDIT HOURS GENERATED BY THE GEOLOGY PROGRAM 2006-2011

	On-campus	DDE	On-Site	Total
2010-2011				
Jay Van Tassell	507			507
Henrietta Laustsen	408		~50	458
Kendall Baxter		682	609	1291

Total	915	682	659	2256
2009-2010				
Jay Van Tassell	523			523
Henrietta Laustsen	408		42	450
Kendall Baxter		504	501	1006
Total	931	504	543	1979
2008-2009				
Jay Van Tassell	523			523
Henrietta Laustsen			24	24
Kendall Baxter		~480	~412	~892
Total	523	~480	~436	~1439
2007-2008				
Jay Van Tassell	235			235
Kendall Baxter		~480	~406	~886
Total	235	~480	~406	~1121
2006-2007				
Jay Van Tassell	352			352
Kendall Baxter		318	105	423
Total	352	318	105	775

Number of Geology Minors

2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
4	6	2	5	~15

GOALS FOR THE FUTURE

1. We'd like to expand our GIS offerings to include an advanced GIS class. The present introduction to GIS class is full every quarter and the students are anxious to pursue the subject further. This would be a great addition to our curriculum.
2. We presently offer only one 100-level geology course on-campus each year, which means that GEOL 101, 102, and 103 have to be offered on a three year rotation. Jay Van Tassell teaches these courses as an overload without pay. We would like to find a way to teach GEOL 101, 102, and 103 each year.
3. We are also hoping to have Mark Ferns, our adjunct professor of geology, teach weekend college classes on the geology of the Grande Ronde River basin, the Elkhorn Mountains, and the Owyhee area, plus an upper division field geology course, so that our students have the chance to learn from his vast knowledge of about the geology of this area and geologic mapping expertise.

Appendix 1. EOU GEOLOGY FACULTY AND STUDENT PUBLICATIONS

Publications in National and International Journals/Geologic Maps:

- Van Tassell, J., Bergey, E., Davis, C., Davis, M., Grimshaw, B., Kisselburg, J., Ledgerwood, R., Miller, S., Morris, C., Steele, J., Weyhmilller, C., Ferns, M.L., Smith, G.R., McDonald, H.G., Mead, J.I., and Martin, R.A., 2007, Early Pliocene (Blancan) Always Welcome Inn local fauna, Baker City, Oregon: Oregon Geology, v. 68, no. 1, p. 3-23.
- Ferns, M., McConnell, V., Madin, I., and Van Tassell, J., 2001, Geologic Map of the Imbler quadrangle: Salem, Oregon Department of Geology and Mineral Industries, 1:24,000.
- Van Tassell, J., Ferns, M., McConnell, M. and Smith, G.V., 2001, The Imbler fish fossils, Grande Ronde Valley, NE Oregon, and the Pliocene Lake Idaho-Columbia River connection: Oregon Geology, v. 63, no. 3, p. 77-84, 89-96.
- Van Tassell, J., 1994, Cyclic deposition of the Catskill Delta of the Appalachians, U.S.A.: International Association of Sedimentologists Special Publication 19, p. 395-411.
- Van Tassell, J., 1994, Evidence for orbitally-driven sedimentary cycles in the Devonian Catskill Delta complex: in Dennison, J.M. and Ettehnsohn, F., Tectonics and Eustatic Controls on Sedimentary Cycles, SEPM Concepts in Sedimentology and Paleontology #4, p. 121-131.
- Van Tassell, J., 1989, Upper Devonian cyclic sedimentation, in Dennison, J. M., 1989, Paleozoic sea-level changes in the Appalachian Basin: Field Trip T359: 28th International Geological Congress, p. 20-29.
- Van Tassell, J., 1988, Upper Devonian Catskill Delta Milankovitch cycles, in Dennison, J. M., Geologic Field Guide, Devonian Delta, East-Central West Virginia and adjacent Virginia: Charleston, West Virginia, Appalachian Geological Society, p. 77-84.
- Van Tassell, J., 1988, Upper Devonian Catskill Delta margin cyclic sedimentation, West Virginia and Virginia: Reply: Geological Society of America Bulletin, v. 100, p. 994-995.
- Van Tassell, J., 1987, Upper Devonian Catskill Delta margin cyclic sedimentation: Brallier, Scherr, and Foreknobs Formations of Virginia and West Virginia: Geological Society of America Bulletin, v. 99, p. 414-426.
- Van Tassell, J., 1986, Discussion: The hydraulic interpretation of turbidites from their grain sizes and sedimentary structures: Sedimentology, v. 33, p. 437-440.
- Van Tassell, J., 1981, Silver Abyssal Plain carbonate turbidite: Flow characteristics: Journal of Geology, v. 89, p. 317-333.

Senior Thesis Publications:

- Bergey, E., Morris, C., and Van Tassell, J., 2009, The geology and geomorphology of the late Pliocene Maggie's Vent, a basanite fissure volcano, Mount Fanny quadrangle, Oregon: Eastern Oregon Science Journal, v. XXI, p. 38-46.
- Kisselburg, J., 2006, Semi-quantitative analysis of the distribution of fossils in the upper third of the Always Welcome Inn sequence, Baker City, Oregon: Eastern Oregon Geology, v. 3.
- Zublin, B., 2006, The geology of the lower half of the Powder River canyon between Thief Valley Reservoir and the lower Powder Valley, Baker City, Oregon: Eastern Oregon Geology, v. 3.

- Ledgerwood, R., and Van Tassell, J., 2005, Stratigraphy and age of the late Miocene sediments and volcanic deposits along the Baker-Copperfield highway between Banta Road and the Love Ranch, Keating, Oregon: Eastern Oregon Geology, v. 3.
- Isaacson, A., 2002, Sedimentology of the Catherine Creek Lane gravels: Eastern Oregon Geology, v. 1.
- Sherman, D., 2002, Flow direction of late Miocene basalt and metaquartzite river deposits in the Starkey area, NE Oregon: Eastern Oregon Geology, v. 1.
- Pilling, S., 1998, Sedimentology of a Pleistocene outcrop, Waite Bluff, Foothill Road, south of La Grande, OR: Eastern Oregon Science Journal, v. 14, p. 29-33.
- Harmon, J.K., 1998, Sediments of the Homer, Alaska, area: Eastern Oregon Science Journal, v. 14, p. 34-38.
- Swanger, M., 1997, Structural geology of the John Day Formation, Warm Mineral Springs area, northeastern Oregon: Eastern Oregon Science Journal, v. 13, p. 20- 23.
- Johnson, D.C., 1997, Sugarloaf Mountain tor, Blue Mountains, northeastern Oregon: Eastern Oregon Science Journal, v. 13, p. 30-32.
- Bishop, J.R. and Van Tassell, J., 1994, Structural geology of an outcrop of the Jurassic Weatherby Formation along I-84 southwest of Weatherby, Oregon: Eastern Oregon Science Journal, v. 10, p. 18-20.

Presentations at Professional Meetings:

- Van Tassell, J., Rinehart, J., Kay, A.B., and Mahrt, L., 2011, Late Pleistocene mammoth, bear, bison, and ground squirrel fossils from the Airport Lane site, La Grande alluvial fan terrace, NE Oregon (abstract): GSA Abstracts with Programs, v. 43, no. 4.
- Van Tassell, J., and Ledgerwood, R., 2009, Miocene sediments and tuffs of the Keating Valley, NE Oregon (abstract): GSA Abstracts with Programs, v. 41, no. 7, p. 122-123.
- Burnette, C., Dittrick, J., Freeman, R., Swanson, K., and Van Tassell, J., 2009, Early Jurassic (Pliensbachian) *Lupherella* abundance zone, Hurwal Formation, Southern Willowa Mountains, Northeast Oregon (abstract): GSA Abstracts with Programs, v. 41, no. 5, p. 35.
- Bork, M., Rinehart, J., and Van Tassell, J., 2009, The early Pliocene (Blancan) *Ophiomys* and the migration of *Ophiomys* into the Pacific Northwest (abstract): GSA Abstracts with Programs, v. 41, no. 5, p. 33.
- Baxter, M., Bergey, E., Brasel, K., Dretke, T., Grimshaw, B., Kuenzli, A., Morris, C., Swanson, K., Weyhmler, C., Van Tassell, J., and Ferns, M.L., 2008, The Always Welcome Inn early Pliocene fossil dig (abstract): Proceedings of the American Association for the Advancement of Science, Pacific Division, v. 27, part 1, addendum.
- Bergey, E.R., Kelley, R.B., Morris, C.M., Pangelinan, R., Van Tassell, J., and Warren, S., 2008, A new species of *Cryptantha* found on pre-Bull Lake alluvial fan deposits from the Big Lost River Valley, Idaho (abstract): Proceedings of the American Association for the Advancement of Science, Pacific Division, v. 27, part 1, p. 103.
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