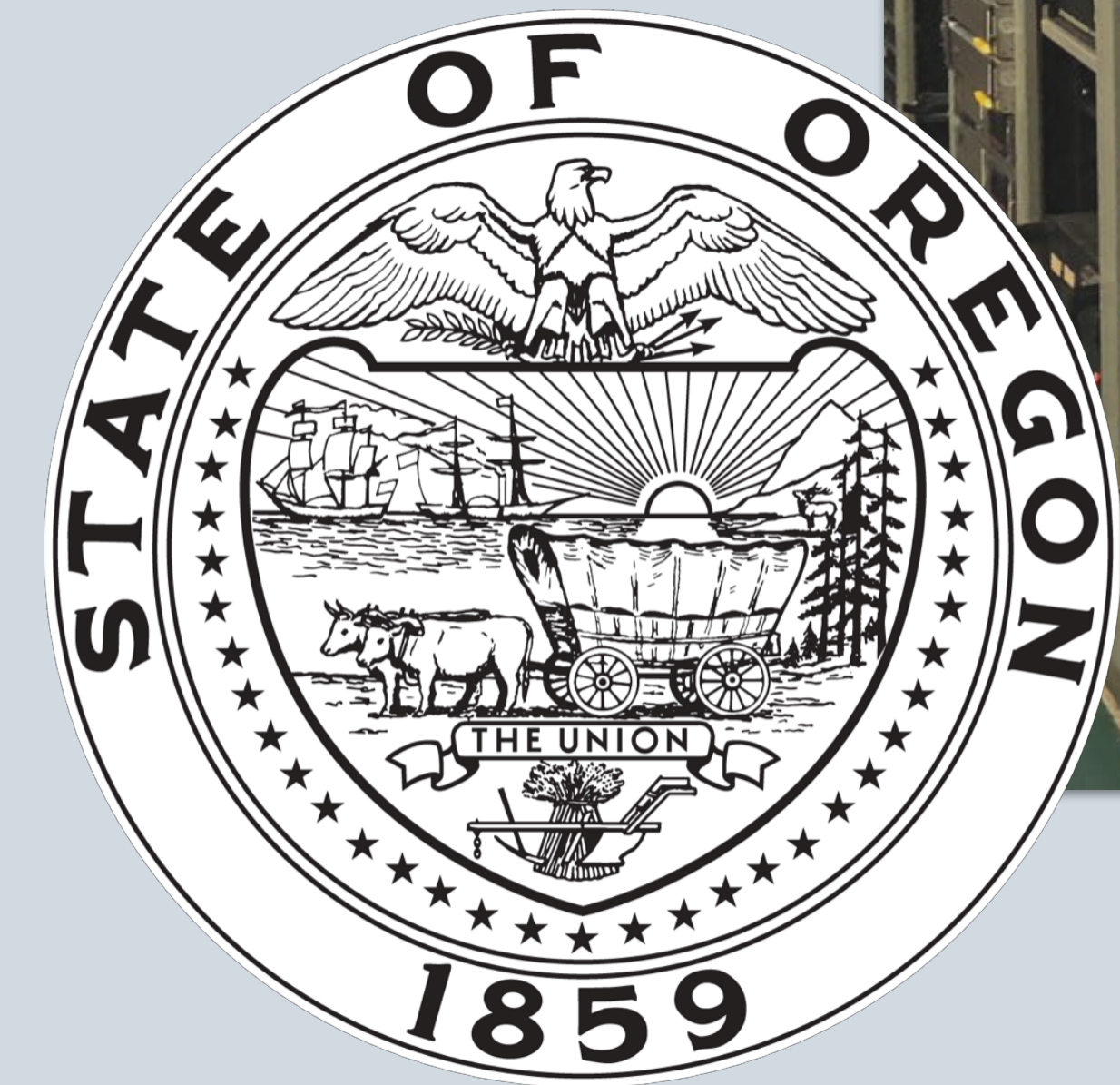
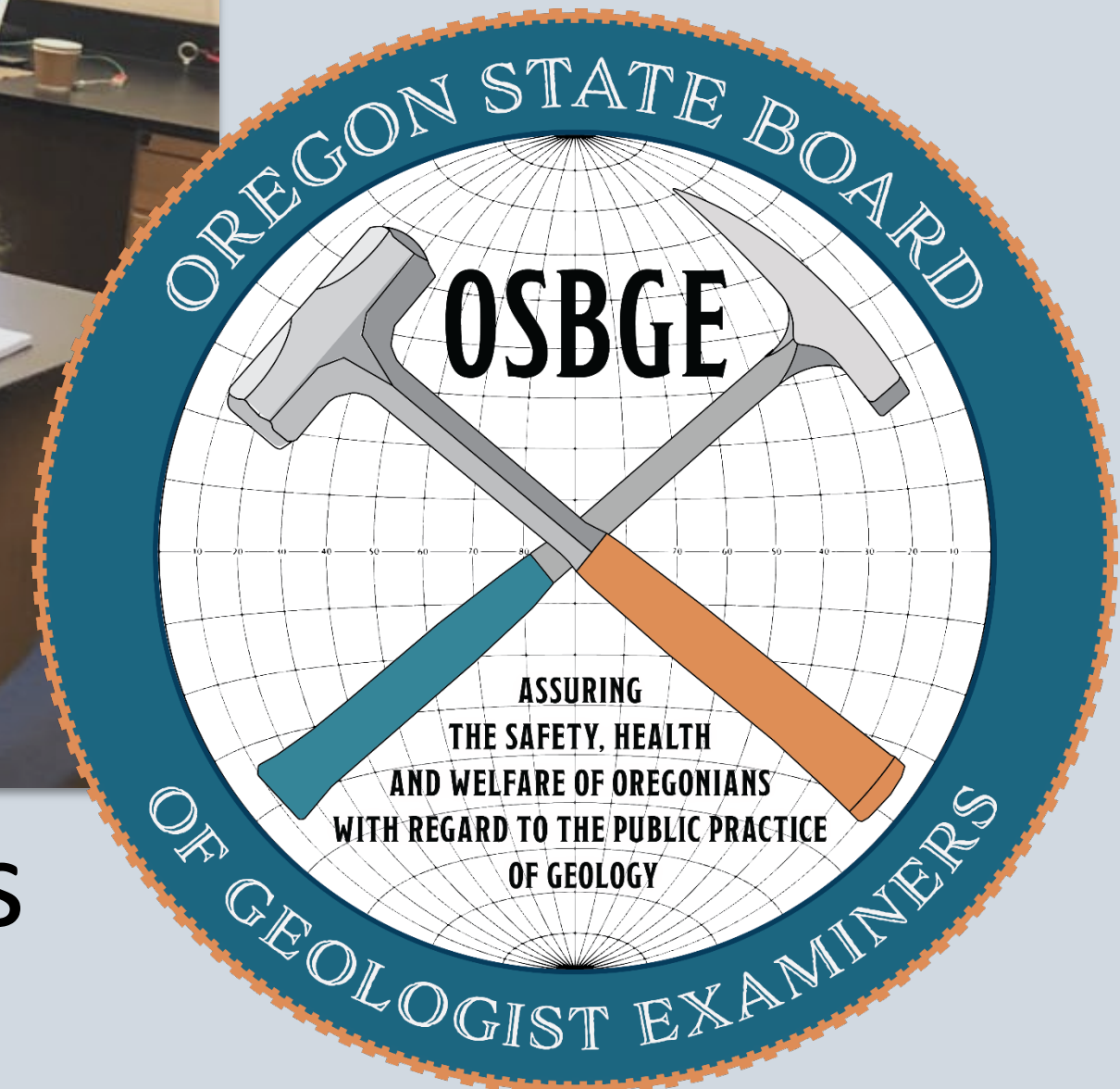


# Registration (Licensing) for Geology Careers in Oregon



Oregon State Board of Geologist Examiners  
Professionals in Service to Oregonians Since 1977



# Presenters

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Alexander Lopez III, RG

DOGAMI Public  
Affairs Coordinator



Christine Valentine

OSBGE Administrator  
(Exec. Director)



Paul Edison-Lahm

OSBGE Public  
Member

# Audience Questions

How many juniors or seniors are here?

Any graduate students?

How many of you hope to start a geoscience career right after obtaining your degree?

Has anyone heard about professional registration (licensure) for geologists before?



## What do we have to offer today? Information about:

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- ✓ Why registration (i.e., licensure) exists.
- ✓ What registration can do for you.
- ✓ The pathway to registration and types of registration.
- ✓ Some general information about geology careers.

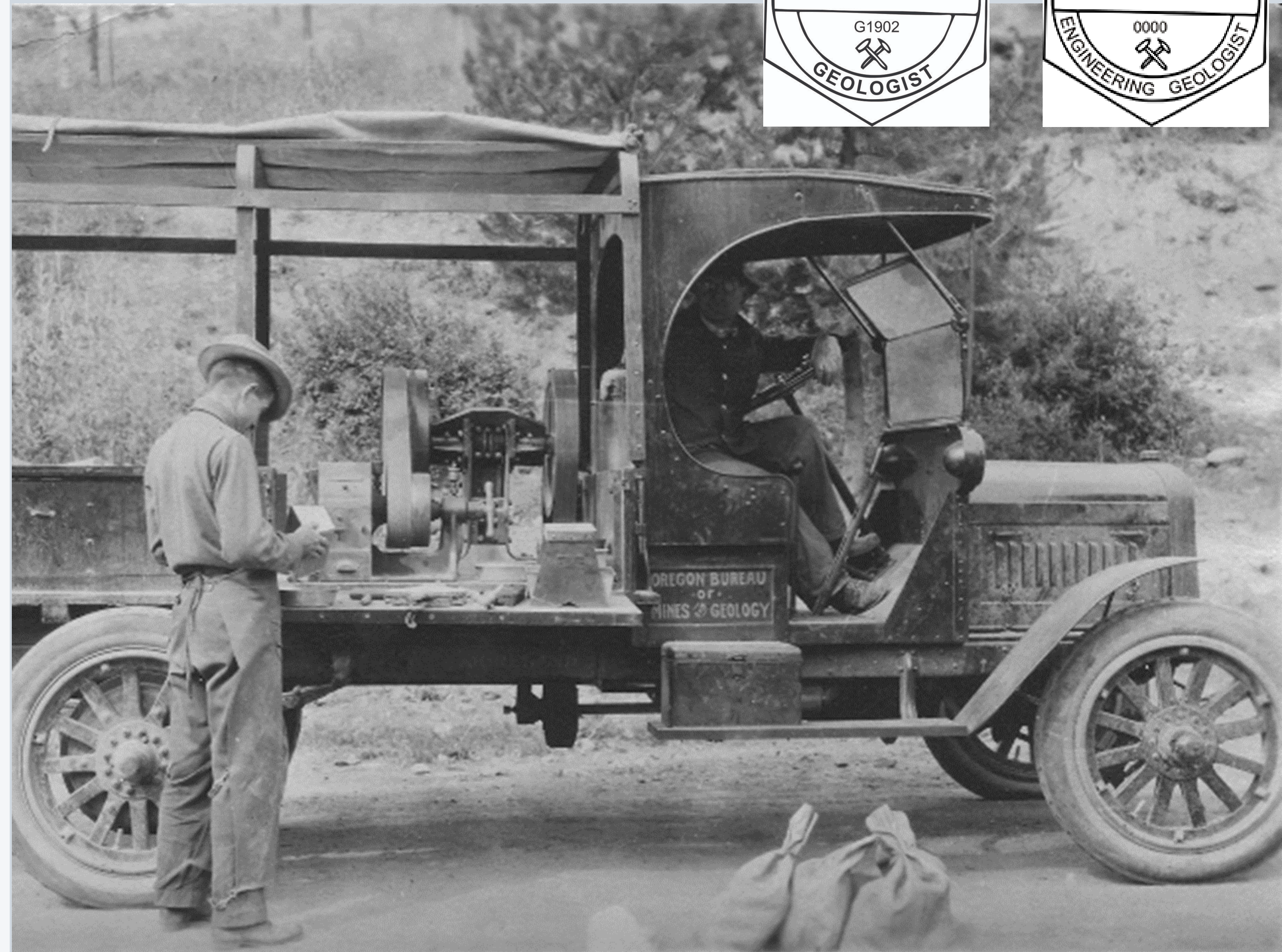
- 1 History and Importance of Registration
- 2 Registration Types
- 3 Benefits of Registration
- 4 How to Become Registered
- 5 Geology Career Resources



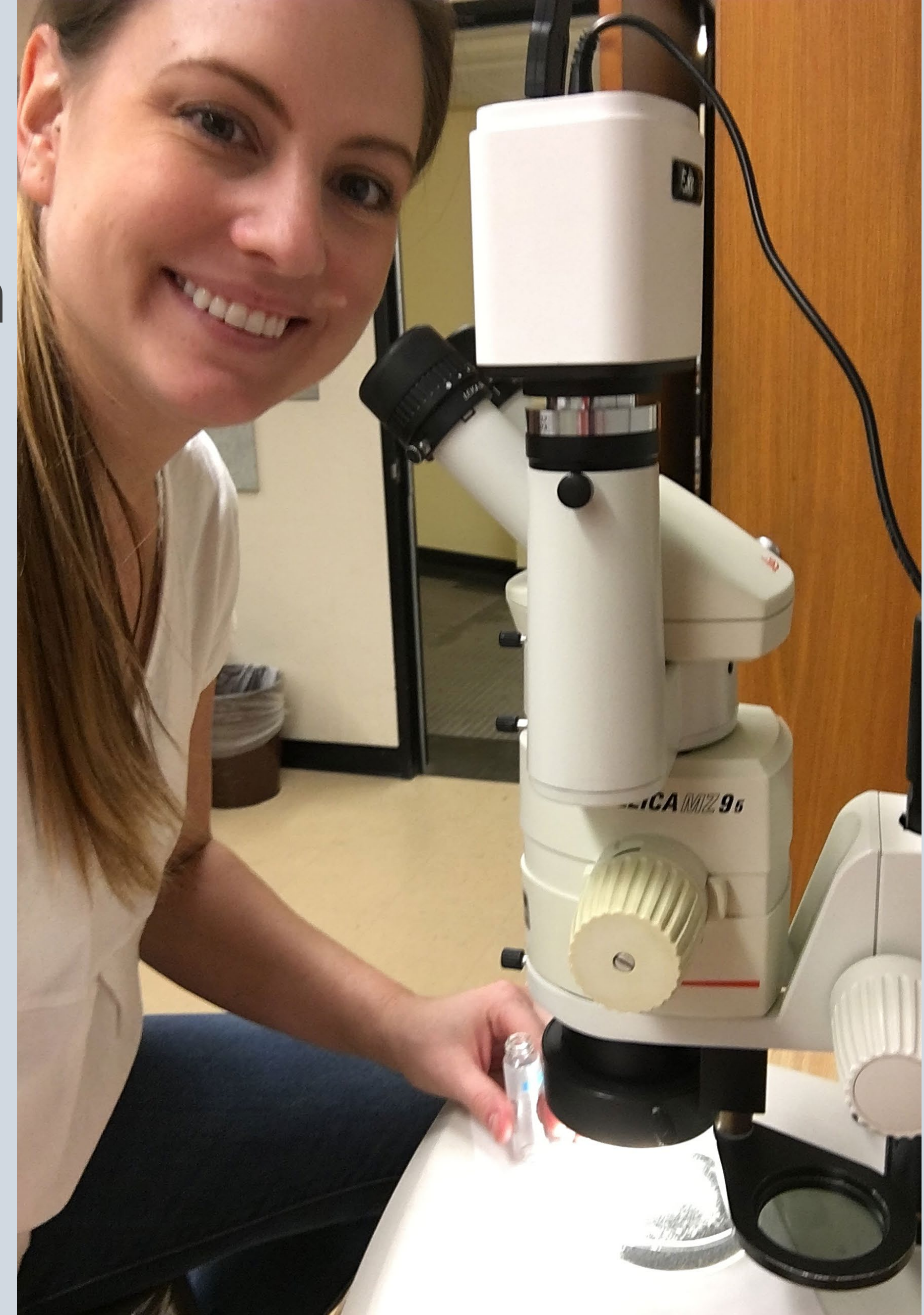
**OSBGE** is a state government agency created in 1977. It is the State of Oregon's professional licensure board for geologists.

### **OSBGE Mission**

Help assure the safety, health, and welfare of Oregonians with regard to the public practice of geology



- 1 History and Importance of Registration
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At the state government level, we have laws governing the practice of geology. Why?

- ✓ Establish minimum standards of **competency**
- ✓ Create **legal responsibility** for work performed
- ✓ To protect the health, safety, property, and **welfare of the public**

Oregon Administrative Rules [Chapter 809](#)

Oregon Revised Statutes [672.505 to 672.991](#)



# Public Practice in Oregon

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Who must be **registered**?

- ✓ Those who perform geological service or work related to public welfare or safeguarding of life, health, property, and environment

Who is **exempted**?

- ✓ Federal or tribal employees
- ✓ University professors
- ✓ Subordinates to registered geologists
- ✓ Private citizens providing testimony at public hearings

# How to Establish Competence?

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Each state board makes its own requirements.

Generally a board requires:

- ✓ Post-secondary education
- ✓ Supervised work experience
- ✓ Passing two national exams
- ✓ Additional exam for specialty licenses



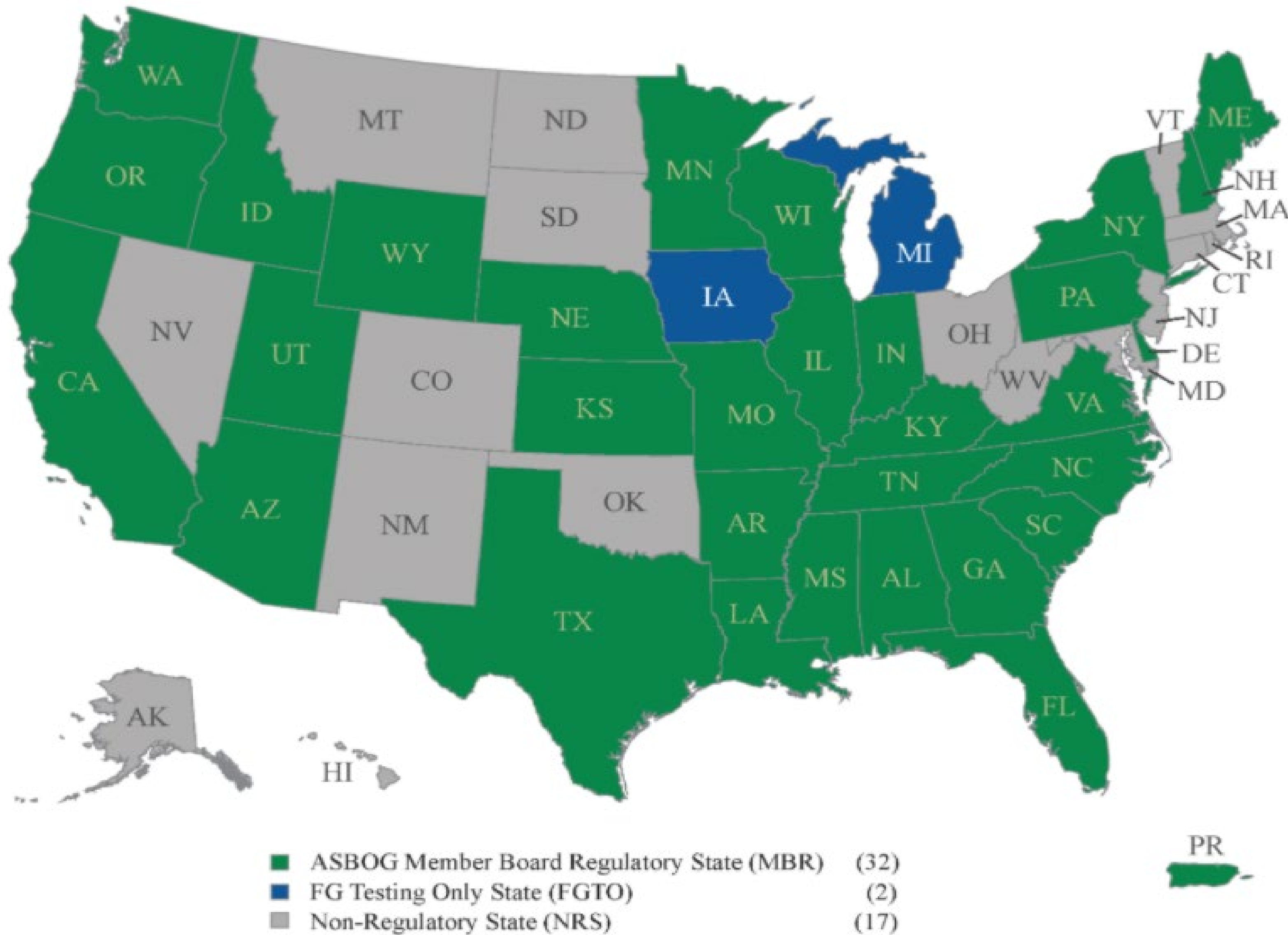
# Association of State Boards of Geology (ASBOG)

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- ✓ A separate entity from state licensure boards
- ✓ ASBOG does not grant registrations; it is an examination body
- ✓ ASBOG Council of Examiners meets twice per year to review exam sections
- ✓ ASBOG exam sections:
  - Fundamentals of Geology (FG)
  - Practice of Geology (PG)



# United States & Puerto Rico



ASBOG exams & registration required in 32 states & Puerto Rico.

Oregon has required registration since 1978 and been an ASBOG member since 1990.

- 1 History and Importance of Registration
- 2 Registration Types**
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# Registration Types in Oregon

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Geologist-in-Training (GIT)

Registered Geologist (RG)

Certified Engineering Geologist (CEG)

**Specialty License**



# Oregon Statistics:

109 GITs

870 RGs

177 CEGs

~50% of RGs and CEGs  
are out of state.

Data as of 3/2024

# Geologist-in-Training (GIT)

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- ✓ Education + pass the ASBOG FG exam
- ✓ Optional; title use registration
- ✓ Not a practice registration (i.e., must work under supervision of RG or CEG)
- ✓ Subject to code of professional conduct
- ✓ Stepping-stone to RG





# Geologist-in-Training (GIT)

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So... what's the point?

- ✓ Show intent
- ✓ Build technical competence
- ✓ Understand regulations
- ✓ Spread out 8 hours of exams
- ✓ Prepares you for format of next exam



# Registered Geologist (RG)

- ✓ Education + experience + pass the ASBOG FG + ASBOG PG exams
- ✓ Independent public practice in responsible charge
- ✓ Can stamp, sign, and date reports
- ✓ Can advertise as an RG
- ✓ Examples of RG work



# Certified Engineering Geologist (CEG)

- ✓ Pass ASBOG FG + ASBOG RG + EG specialty exam
- ✓ CEGs must be RGs first!
- ✓ Additional authorization to develop, supervise and stamp work that falls under the definition of engineering geology
- ✓ Examples of CEG work



**Specialty License**

- 1 History and Importance of Registration
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# What can registration do for me?

- ✓ Required in the majority of U.S. states
- ✓ Increases career opportunities and independence
- ✓ Demonstrates professional responsibility and increases credibility
- ✓ Financial incentive

## Preferred Qualifications:

- Master's Degree in Hydrogeology, Geochemistry, Geology, Environmental Science, or related field
- Geologist-In-Training (GIT) or Registered Geologist (RG) license
- 2-4 years of environmental consulting experience
- Quantitative data analysis experience, including flow and transport models, statistical analysis, GIS, or scientific coding (R or Python)
- Current OSHA HAZWOPER 40 hr / 8 hr training

## • Desired:

- + Prior project experience in the Pacific Northwest is highly desired.+ A Master's Degree in environmental science/hydrogeology, geology, geosciences, or similar field.+ Strong computer skills, including Microsoft Excel, Word, PowerPoint, Access, ArcGIS, MODFLOW, R, Python, etc.+ Strong project management experience of multi-disciplinary teams.+ Experience with environmental statistics and site closure strategies is highly desired.+ Professional Engineer (PE) and/or Professional Geologist (PG) and/or Licensed Hydrogeologist (LHg) and/or Certified Water Rights Examiner (CWRE).+

## Other reasons people get registered:

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- ✓ *I started on the academia track and decided to work in industry instead of finishing my PhD. Once here, I wanted to achieve the highest professional certification in our field: the RG.*



## Other reasons people get registered:

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- ✓ *I wanted extra credibility. I also needed to be able to stamp applications for well installations, so the RG expanded my job functions.*
- ✓ *I became licensed to make myself more marketable. I'm on a technical career track, and at a certain point I felt that wouldn't look good I weren't a licensed professional.*



1 History and Importance of Registration

2 Registration Types

3 Benefits of Registration

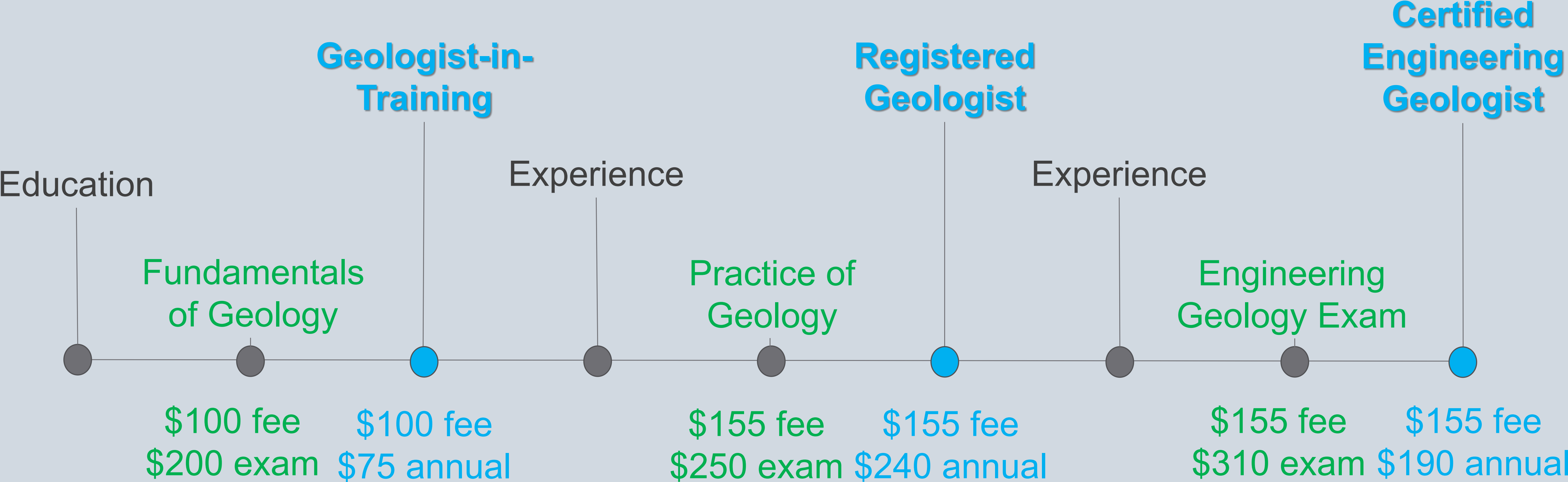
**4 How to Become Registered**

5 Geology Career Resources





# Pathway to Registration in Oregon



# Geoscience Coursework

***MINIMUM 45 quarter hours (36 upper division) or 30 semester hours (24 upper division)***

- Climate change science
- Coastal processes
- Economic geology
- Engineering geology
- Environmental geology
- Geochemistry or Hydrogeochemistry
- Geographic Information Systems (GIS)
- Geology field camp
- Geology field methods
- Geomorphology
- Geophysics
- Geostatistics
- Glacial geology
- Groundwater hydrology
- Groundwater modelling
- Historical geology
- Hydrogeology
- Lithology
- Marine geology
- Mineral exploration
- Mineralogy, Optical mineralogy, or Clay mineralogy
- Paleopedology/Paleosols
- Petrography
- Petroleum geology
- Petrology
- Planetology
- Remote sensing
- Rock mechanics
- Sedimentology
- Seismology
- Soil Science
- Stratigraphy
- Structural geology
- Tectonics
- Volcanology



## ASBOG Fundamentals of Geology (FG) Exam

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- ✓ 4-hour exam
- ✓ 140 multiple choice questions
- ✓ Knowledge and skills from education
- ✓ Can apply after completing required coursework
- ✓ Pass FG → apply for GIT

## ASBOG Practice of Geology (PG) Exam

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- ✓ 4-hour exam
- ✓ 110 multiple choice questions
- ✓ Knowledge and skills gained from work
- ✓ Can apply after completing required education + work experience
- ✓ Pass FG + PG → apply for RG

**Note:** ASBOG is a separate entity from the Oregon Board! Go to [asbog.org](http://asbog.org) for more information.

# ASBOG Exam Content Areas

<b>Content Domain</b>	<b>FG %</b>	<b>PG %</b>
A. General & Field Geology	21	20
B. Mineralogy, Petrology, & Geochemistry	11	05
C. Sedimentology, Stratigraphy, & Paleontology	12	06
D. Geomorphology, Surficial Processes, Quaternary Geology	13	08
E. Structure, Tectonics, & Seismology	11	08
F. Hydrogeology	12	19
G. Engineering Geology	11	19
H. Economic Geology & Energy Resources	09	15
<b>TOTALS</b>	<b>100</b>	<b>100</b>

✓ Visit [oregon.gov/osbge](https://oregon.gov/osbge) for application

✓ Visit [asbog.org](https://asbog.org) for exam information



## Exams Offered Twice per Year

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2024 Spring March 15 • 2024 Fall October 4

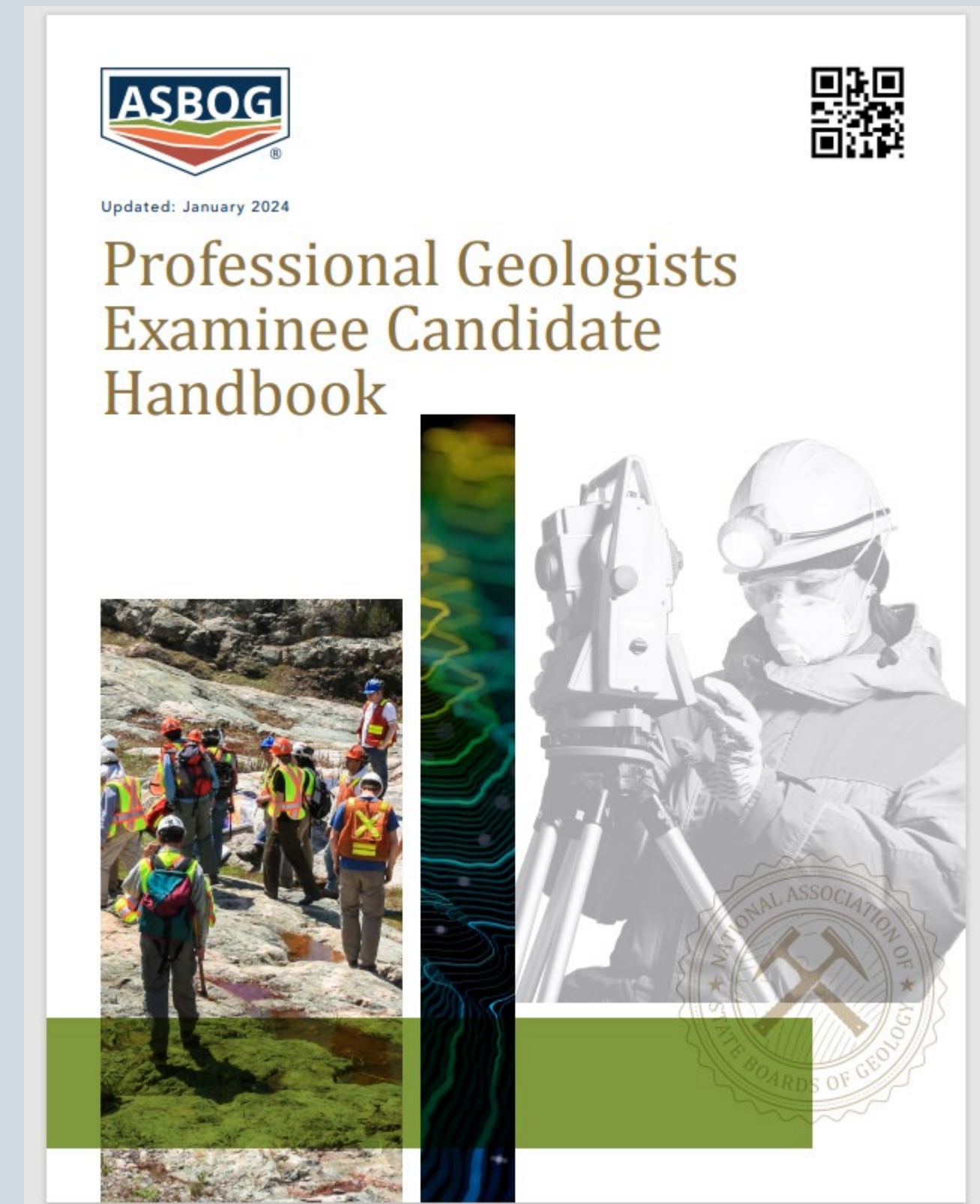
2025 Spring March 21 • 2025 Fall October 3

***Applications due to OSBGE 100 days prior to exam!***

# ASBOG Resources

## ASBOG Candidate Handbook

- ✓ Only official guidance
- ✓ 2024 version available for free at [www.asbog.org/candidates/](http://www.asbog.org/candidates/)
- ✓ Breakdown of subjects by percentage and sample questions

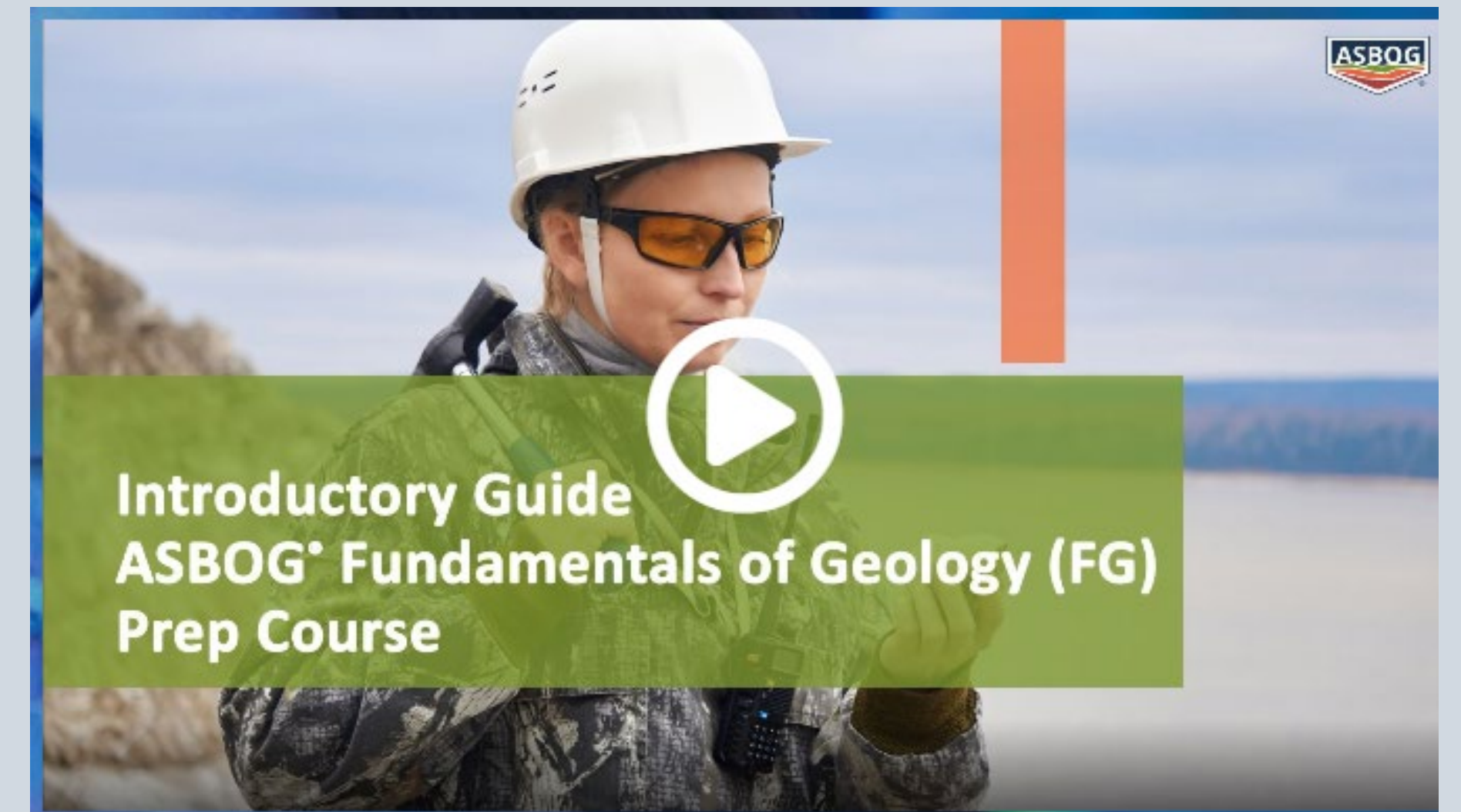




## ASBOG Resources

### ASBOG FG Prep Course

- ✓ New as of 2023
- ✓ 8+ hr. online course
- ✓ Given access for 6 months, can reinstate for another 6 months if do not pass the FG exam
- ✓ Cost of \$350 (subject to change)
- ✓ <https://www.asbog.org/fgprep/index.html>

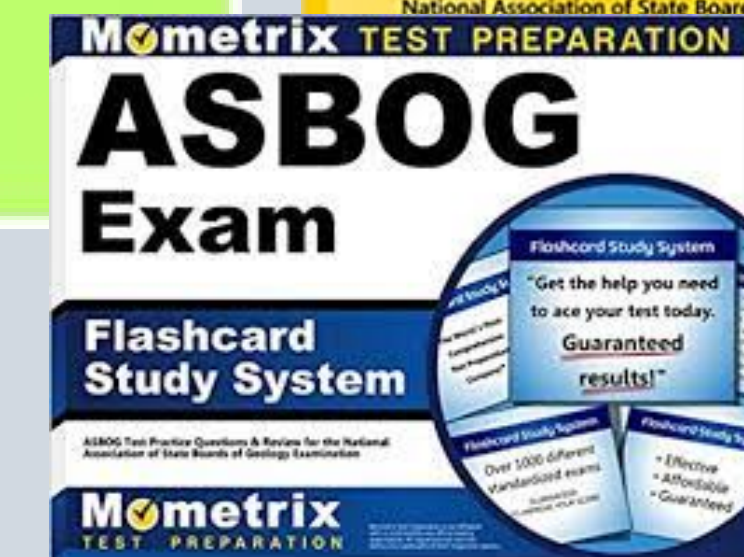
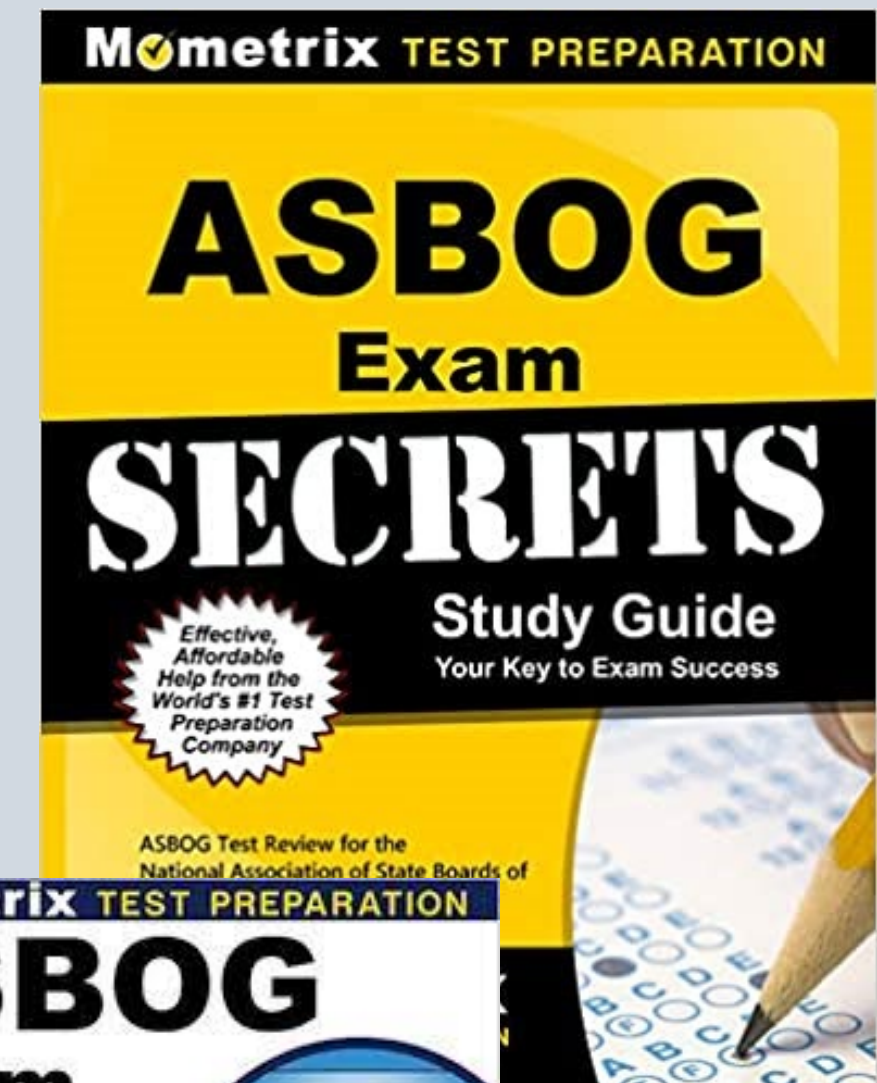
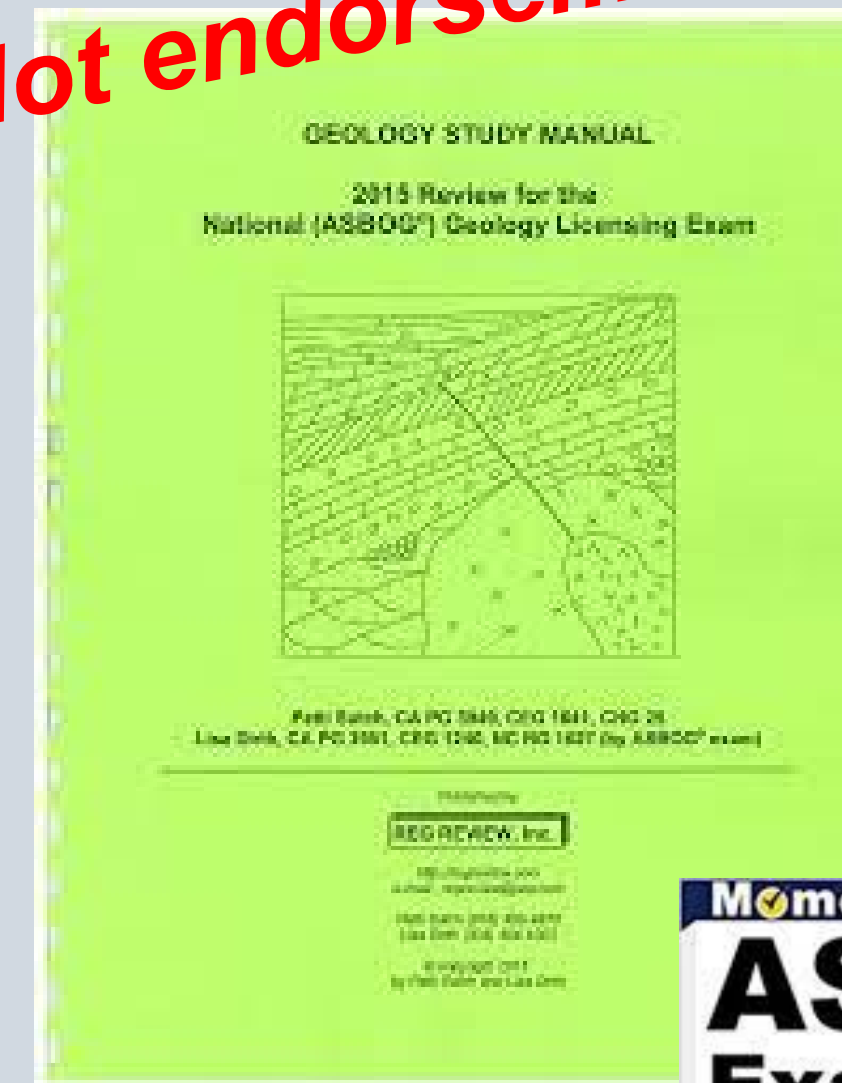


**\*Not endorsement**

# Other Resources

- ✓ Private market, like REG Review\*
- ✓ MIT open courses
- ✓ College textbooks
- ✓ Study blue flashcards

*\*Not endorsements*





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# Labor Statistics

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	<b>U. S. Bureau of Labor</b>	<b>OR Employ. Dept</b>
2022 Median Salary	\$87,480/year ~\$42/hr	~\$44/hr
Entry Level Education	Bachelor's Degree	Bachelor's Degree
# Jobs 2022	26,300	523
Job Outlook 2022-2032	5% Growth (faster than avg)	23.1%
Employment Change 2022-2032	1,300	57 per year

How to Become a Professional Geologist: Typically need a Bachelor's degree to enter the profession. Some positions require a graduate degree. **Most geologists eventually need a state-issued registration.**

# US Bureau of Labor Statistics – Occupational Outlook Handbook (available online)

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## **LARGEST SECTORS OF EMPLOYMENT FOR GEOSCIENTISTS (2022 data)**

Architectural, engineering, and related services	28%
Management, scientific, and technical consulting services	19%
Mining, quarrying, and oil and gas extraction	15%
Federal government	9%
State government (excluding positions in education)	8%

# Important Skills to Develop

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Geologic knowledge is very important but so are other skills.

- Communication skills – writing, speaking, etc.
- Critical-thinking skills.
- Complex problem-solving skills.
- Computer/database management skills
- Graphic design/data visualization skills
- Outdoor skills/stamina may be needed for positions involving significant fieldwork (but not all positions require field work).

# Tasks of a Professional Geologist

For each subject area covered in the ASBOG FG & PG, ASBOG lists tasks registered geologists are uniquely qualified to perform.

This [list](#) is not intended to define the entire scope of practice for registered geologists.



**Tasks of a Professional Geologist**  
Statement by the National Association of State Boards of Geology

The National Association of State Boards of Geology (ASBOG®) is a non-profit organization, comprised of state boards which license/register geologists. ASBOG® develops national competency examinations used by these Member Boards. The ASBOG® examinations have been adopted by all of the states in the U.S. and the territory of Puerto Rico which have geologic practice acts. The following areas of professional practice contain generalized, and some specific, activities which may be performed by qualified, professional geologists.

Professional geologists are uniquely qualified to perform these activities based on their formal education, training and experience. Under each major heading is a group of activities associated with that specific area of geoscience practice. The major areas of professional, geologic practice include, but are not limited to: Research; Field Methods and Communications; Geochemistry; Mineralogy; Petrology; Stratigraphy; Historical, Structural, Paleontology; Geomorphology; Geophysics; Hydrogeology; Environmental, Geochemistry; Engineering Geology, Economic Geology; Mining Geology and Energy Resources. These areas are specifically included in the ASBOG® examinations to assure geologic competency. Again, this list represents only a cross-section of possible activities, and does not include all potential professional practice activities.

Also included in this publication is a listing of "Other related activities which may be performed by qualified Professional Geologists." These activities, although not specifically geoscience in content, may be performed by a qualified, professional geologist.

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**RESEARCH, FIELD METHODS AND COMMUNICATIONS**

- Plan and conduct field operations including human and ecological health, safety, and regulatory considerations
- Evaluate property/mineral rights
- Interpret regulatory constraints
- Select and interpret appropriate base maps for field investigations
- Determine scales and distances from remote imagery and/or maps
- Identify, locate and utilize available data sources
- Plan and conduct field operations and procedures to ensure public protection
- Construct borehole and trench logs
- Design and conduct laboratory programs and interpret results
- Evaluate historic land use or environmental conditions from remote imagery
- Develop and utilize Quality Assurance/Quality Control procedures
- Construct and interpret maps and other graphical presentations
- Write and edit geologic reports
- Interpret and analyze aerial photos, satellite and other imagery
- Perform geological interpretations from aerial photos, satellite and other imagery
- Design geologic monitoring programs
- Interpret data from geologic monitoring programs
- Read/interpret topographic and bathymetric maps
- Perform geologic research in field and laboratory
- Prepare soil, sediment and geotechnical logs
- Prepare lithological logs
- Interpret dating, isotopic, and/or tracer studies
- Plan and evaluate remediation and restoration programs
- Identify geological structures, lineaments, or fracture systems from surface or remote imagery
- Select, construct, and interpret maps, cross-sections, and other data for field investigations
- Design, apply, and interpret analytical or numerical models

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**GEOCHEMISTRY**

- Evaluate geochemical data and/or construct geochemical models related to rocks and minerals
- Establish analytical objectives and methods
- Make determinations of sorption/desorption reactions based upon aquifer mineralogy
- Assess the behavior of dissolved phase and free phase contaminant flow in groundwater and surface water systems
- Assess salt water intrusion

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- Design, implement and interpret fate and transport models
- Identify minerals and rocks based on their chemical properties and constituents

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**MINERALOGY/PETROLOGY**

- Identify minerals and their physiochemical properties
- Identify mineral assemblages
- Determine probable genesis and sequence of mineral assemblages
- Predict subsurface mineral characteristics on the basis of exposures and drill holes
- Identify and classify major rock types
- Determine physical properties of rocks
- Determine geotechnical properties of rocks
- Determine types, effects, and/or degrees of rock and mineral alteration
- Determine suites of rock types
- Characterize mineral assemblages and probable genesis
- Plan and conduct mineralogic or petrologic investigations
- Identify minerals and rocks and their characteristics
- Identify and interpret rock and mineral sequences, associations, and genesis

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**STRATIGRAPHY/HISTORICAL GEOLOGY**

- Plan and conduct sedimentologic, and stratigraphic investigations
- Identify and interpret sedimentary structures depositional environments, and sediment provenance
- Identify and interpret sediment or rock sequences, positions, and ages
- Establish relative position of rock units
- Determine relative and absolute ages of rocks
- Interpret depositional environments and structures and evaluate post-depositional changes
- Perform facies analyses
- Correlate rock units
- Interpret geologic history
- Determine and establish basis for stratigraphic classification and nomenclature
- Establish stratigraphic correlations and interpret rock sequences, positions, and ages
- Establish provenance of sedimentary deposits

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**STRUCTURAL GEOLOGY**

- Plan and conduct structural and tectonic investigations

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- Develop deformational history through structural analyses
- Identify structural features and their interrelationships
- Determine orientation of structural features
- Map structural features
- Perform qualitative and quantitative structural analyses
- Correlate separated structural features
- Develop and interpret tectonic history through structural analyses
- Map, interpret, and monitor fault movement
- Identify geological structures, lineaments, fracture systems or other features from surface or subsurface mapping or remote imagery

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**PALEONTOLOGY**

- Plan and conduct paleontologic investigations
- Correlate rocks biostratigraphically
- Identify fossils and fossil assemblages and make paleontological interpretations for age and paleoecological interpretations

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**GEOMORPHOLOGY**

- Evaluate geomorphic processes and development of landforms and soils
- Identify and classify landforms
- Plan and conduct geomorphic investigations
- Determine geomorphic processes and development of landforms and soils
- Determine absolute or relative age relationships of landforms and soils
- Identify potential hazardous geomorphological conditions
- Identify flood plain extent
- Determine high water (i.e. flood) levels
- Evaluate stream or shoreline erosion and transport processes
- Evaluate regional geomorphology

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**GEOPHYSICS**

- Select methods of geophysical investigations
- Perform geophysical investigations in the field
- Perform geological interpretation of geophysical data
- Design, implement, and interpret data from surface or subsurface geophysical programs including data from borehole geophysical programs
- Identify potentially hazardous geological conditions by using geophysical techniques

# Some Career Resources

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Geoscience Resources on Opportunities in the Workforce (GROW)

- <https://www.grow-geocareers.com/>

Association of Environmental and Engineering Geologists (AEG)

- <https://www.aegweb.org/students>

American Geosciences Institute (AGI)

- <https://www.americangeosciences.org/workforce/career-resources>

Geological Society of America (GSA)

- [https://www.geosociety.org/GSA/Education\\_Careers/GeoCareers/GSA/careers/home.aspx](https://www.geosociety.org/GSA/Education_Careers/GeoCareers/GSA/careers/home.aspx)

American Institute of Professional Geologists (AIPG)

- <https://aipg.org/page/CareerCenter>

State of Oregon (ODOT, DOGAMI, ODEQ, WRD, OHA-Drinking Water)

- <https://www.oregon.gov/jobs/Pages/index.aspx>

Your own university! Talk with the head of your degree program and your counselors. Attend career fairs and other events that expose you to alumni, employers, etc.

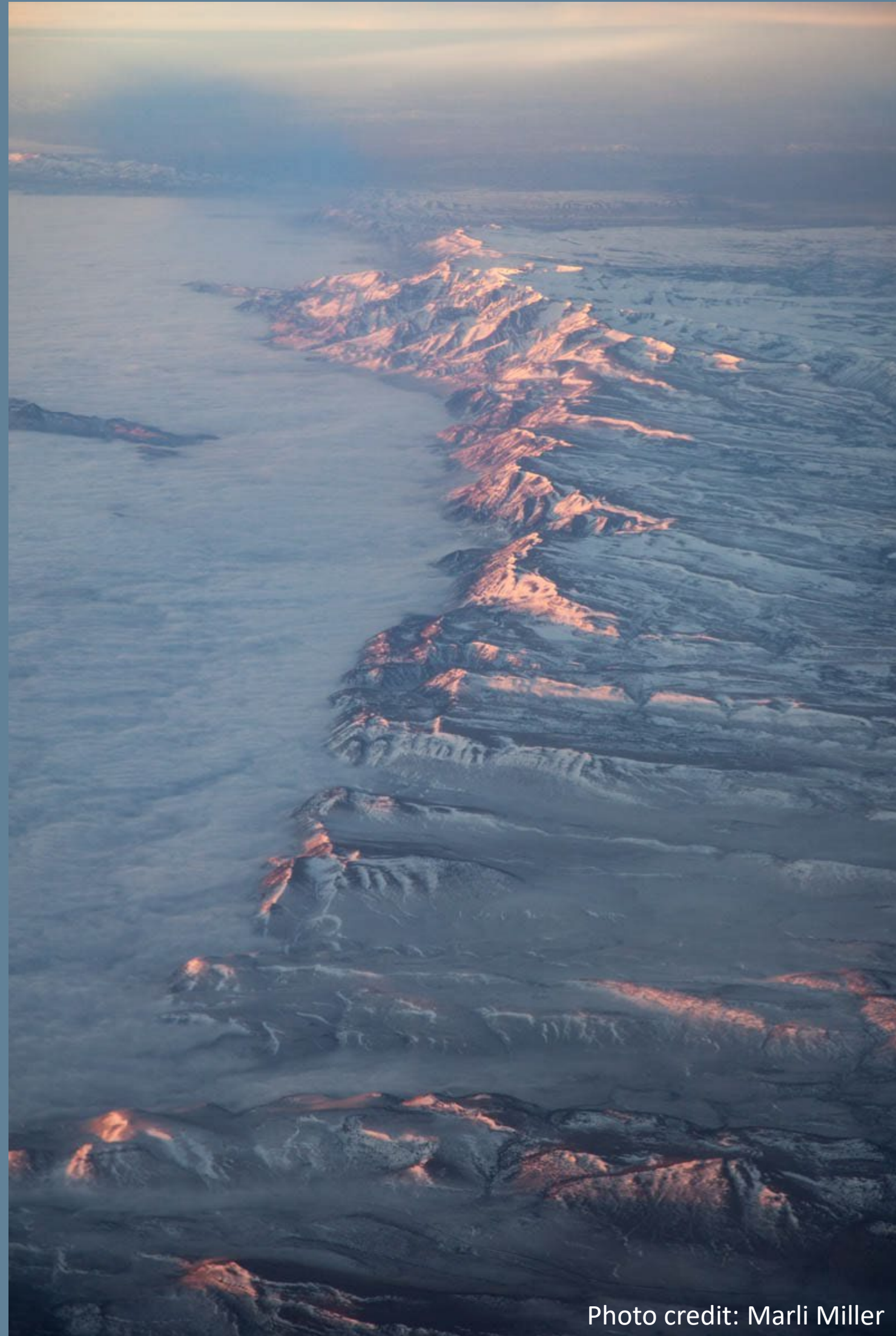
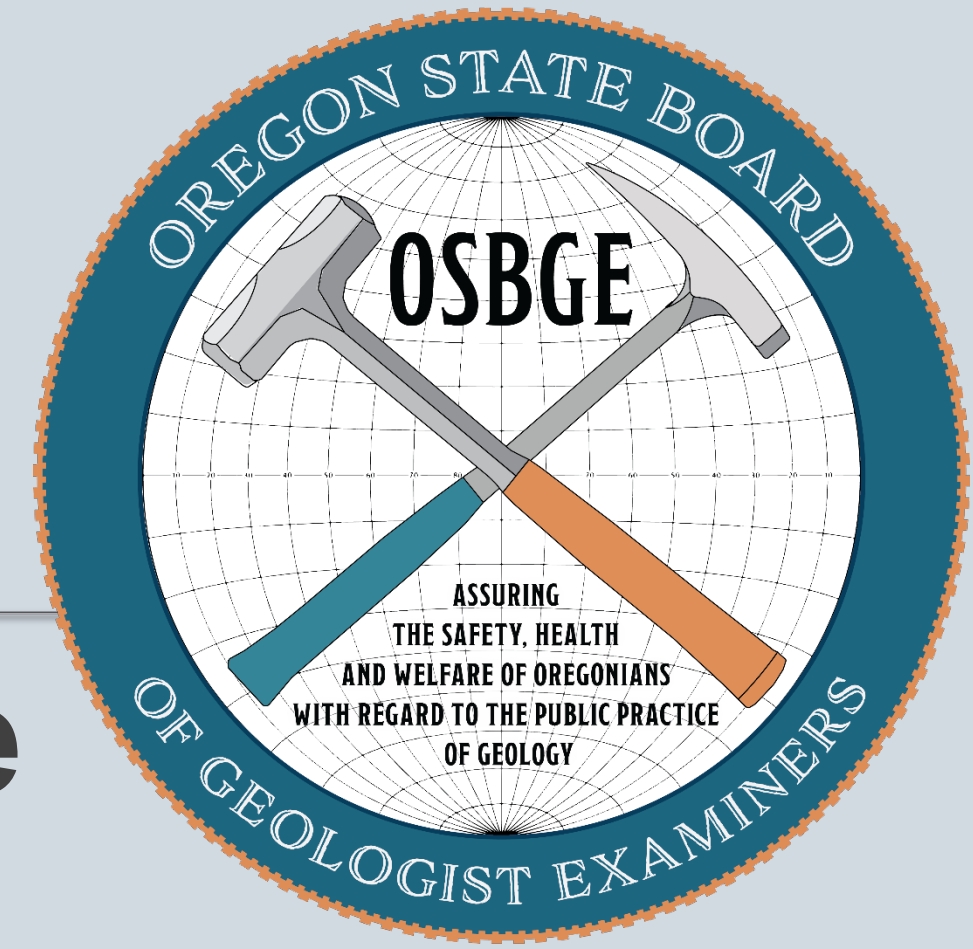


Photo credit: Marli Miller



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**visit: [www.oregon.gov/osbge](http://www.oregon.gov/osbge)**

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**call: 503.566.2837**

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**e-mail: [osbge.info@bgelab.oregon.gov](mailto:osbge.info@bgelab.oregon.gov)**

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**exam resources: [www.asbog.org](http://www.asbog.org)**



Photo credit: Chanel Dvorak

# Questions?