

# Postgraduate Certificate Biology and Geology Teaching





## Postgraduate Certificate Biology and Geology Teaching

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/education/postgraduate-certificate/biology-geology-teaching](http://www.techtitute.com/us/education/postgraduate-certificate/biology-geology-teaching)

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# 01

# Introduction

New technologies such as Virtual Reality, Augmented Reality, or laboratories created in virtual environments have made it possible to bring scientific language and science closer to schoolchildren in an attractive way. In this way, current teaching methodologies favor the learning-teaching process, especially in disciplines such as Biology and Geology. In order to take advantage of all this potential, TECH has created this program that delves into the role of the teacher, the latest digital techniques and resources, and the existing alternatives to traditional evaluation systems. All in a 100% online educational format and with a syllabus available 24 hours a day, from any electronic device with an Internet connection.





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*A 100% online Postgraduate Certificate that will allow you to prosper as a teacher of Biology and Geology with the best teaching"*

Undoubtedly, the incorporation of new technologies and digital resources in the classroom has opened up a wide range of possibilities in the teaching-learning process. In this way, it is now common to be able to teach science through resources hosted on the Internet, or with VR devices. These advances also transform traditional teaching methods to adapt them to the new educational times.

In this scenario, the teaching professional who teaches Biology and Geology has new methodologies and innovative material to be able to offer this discipline in an attractive way. In this way, in order to improve teaching, TECH has designed this 100% online course of only 6 weeks duration.

It is a program with the most advanced syllabus on science communication and teaching, the most effective use of TIC in the classroom, or recent models and methodologies applied to the specialty of Biology and Geology. In addition, thanks to video summaries of each topic, in-depth videos, essential readings or case studies, students will be able to dynamically delve into the most efficient evaluation systems or creative and inventive teaching techniques.

Likewise, with the Relearning method, based on the reiteration of content, students will be able to advance naturally through the program and reduce the hours of memorization that are so frequent in other educational systems.

In this way, future teachers have an excellent opportunity to make significant progress in their daily work in the classroom through a flexible Postgraduate Certificate program. You only need an electronic device (computer, cell phone, or tablet) with an Internet connection to view, at any time of the day, the content of this program. In this way, the graduates will be able to combine their daily responsibilities with a quality university education.

The **Postgraduate Certificate in Biology and Geology Teaching** contains the most complete and up-to-date educational program on the market. The most important features include:

- ♦ The development of case studies presented by experts in teaching in High School Education
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*Stand out in your teaching work in Biology and Geology by bringing the most attractive and impressive multimedia teaching resources to your classroom. Enroll now”*

“

*Enter into Gagné's expository, instructional, or discovery models whenever you want, from your computer with an Internet connection"*

*This program provides you with new alternatives to experimental science learning assessment systems.*

*Immerse your students in Virtual and Augmented Reality to bring them closer to the advances in the field of health in an attractive way.*

The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

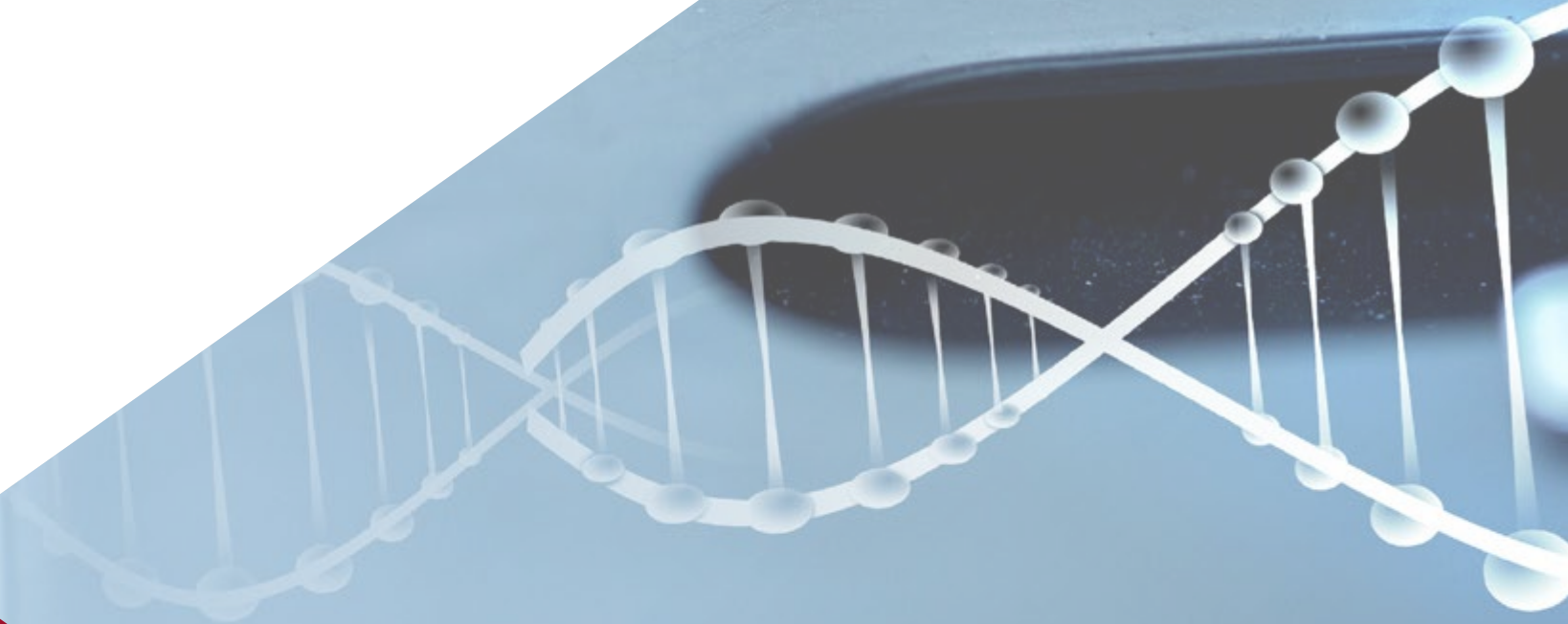
This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the educational year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.



# 02

# Objectives

The objective of TECH is to enable the teaching professional to improve their teaching skills oriented to the teaching of Biology and Geology in High School Education. To further this goal, this institution provides an advanced and current syllabus, designed and developed by an outstanding faculty and up-to-date with the latest developments in general teaching.







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*Become a brilliant teacher with all the knowledge TECH brings you in this teaching program. Enroll now”*



## General Objectives

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- ♦ Introduce students to the world of teaching, from a broad perspective that provides them with the necessary skills for the performance of their work
- ♦ Know the new tools and technologies applied to teaching
- ♦ Show the different options and ways the teacher can work in their post
- ♦ Promote the acquisition of communication and knowledge transmission skills and abilities
- ♦ Encourage continuing education for students





## Specific Objectives

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- ♦ Understand the origin and evolution of didactics
- ♦ Different definitions of the concept of didactics
- ♦ Propose a classification of didactics
- ♦ Explain the contribution of the CSIC to the scientific formation of teachers
- ♦ Expose the objects of study of Science didactics



*You will be able to bring to your classroom the most recent methodological approaches in Biology and Geology thanks to the case studies provided by the teachers who teach this program"*

# 03

# Course Management

In this Postgraduate Certificate, students will meet an excellent team of teachers with extensive professional experience in the teaching sector. Their experience as teachers and their continuous updating on teaching guarantees the future teacher who wishes to know the most recent methodologies, resources and approaches to be able to successfully teach the discipline of Biology and Geology in High School Education.





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*TECH has selected experienced classroom teachers with extensive knowledge of the most current teaching methods used in Biology and Geology”*

## Management



### Dr. Barboyón Combey, Laura

- ♦ Teacher of Primary Education and Postgraduate Studies
- ♦ Teacher in Postgraduate University Studies of High School Teacher Formation
- ♦ Teacher of Primary Education in several schools
- ♦ Doctor in Education from the University of Valencia
- ♦ Master's Degree in Psychopedagogy from the University of Valencia
- ♦ Degree in Primary School Education with a major in English Teaching from the Catholic University of Valencia San Vicente Mártir



# 04

# Structure and Content

The teaching professional who takes this university program will have access to an advanced syllabus that offers the most attractive teaching syllabus in High School Education applied to the scientific disciplines of Biology and Geology. In this way, through video summaries, In Focus videos or case studies, you will learn about the new role of the teacher, the most innovative methodologies, and the numerous activities inside and outside the classroom to enhance learning. All of this is complemented by case studies that provide a practical and direct approach to general teaching.







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*Multimedia pills, specialized readings,  
and case studies will be available 24  
hours a day, 7 days a week. Enroll now”*

## Module 1. Biology and Geology Teaching

- 1.1. General Didactics and Science Didactics
  - 1.1.1. Origin and Evolution of Didactics
  - 1.1.2. Definition of Didactics
  - 1.1.3. Internal Classification of Didactics
  - 1.1.4. Learning to Teach Science: Science Didactics
  - 1.1.5. Objects of Study of Science Didactics
- 1.2. The Role of the Teacher and His Role as a Generator of a Good Context for the Learning of Biology and Geology
  - 1.2.1. The Role of the Teacher and the Development of Teaching Skills
  - 1.2.2. The Teacher as Researcher
  - 1.2.3. The Motivating Teacher
  - 1.2.4. Characteristics of the Secondary School and Vocational Training Student Body
  - 1.2.5. The Teacher as a Manager of Coexistence and Promoter of the Functioning of the Groups
- 1.3. Learning Techniques and Strategies in Biology and Geology Stages
  - 1.3.1. What Are Learning Strategies?
  - 1.3.2. Thinking Phases and Corresponding Strategies
  - 1.3.3. Conditioning or Supporting Strategies
  - 1.3.4. Acquisitive Stage Receptive Stage: Strategies for Information Acquisition and Selection
  - 1.3.5. Acquisitive Stage Reflective Phase: Strategies of Knowledge Organization and Comprehension
  - 1.3.6. Acquisitive Stage Retentive Stage: Memorization Strategies for the Storage and Retrieval of Knowledge
  - 1.3.7. Reactive Stage Extensive-Creative Phase Inventive and Creative Strategies
  - 1.3.8. Reactive Stage Extensive- Reactive Phase Strategies for Knowledge Transfer
  - 1.3.9. Reactive Stage Symbolic Expressive Phase Oral and Written Expression Strategies
  - 1.3.10. Reactive Stage Practical Expression Phase Strategies for Technical, Artistic, and Ethical Expression
  - 1.3.11. Metacognition
- 1.4. New Teaching Approaches Models and Methodologies Applied to the Specialty of Biology and Geology
  - 1.4.1. New Teaching Approaches of Biology and Geology STEM/STEAM
  - 1.4.2. Differences between the Teaching Model, Methodology, and Methodological Technique
  - 1.4.3. Transmission-Reception Model Expositive Model
  - 1.4.4. Models by Discovery
  - 1.4.5. Constructivist Model (Meaningful Learning and Cognitive Conflict)
  - 1.4.6. Gagné's instruction Model
  - 1.4.7. Explications in Science Classes
  - 1.4.8. Reasoning and Argumentation
  - 1.4.9. Problem-Based Learning (PBL), Case Studies, and Project Work
  - 1.4.10. Cooperative vs. Collaborative
  - 1.4.11. Flipped Classroom
  - 1.4.12. Game-Based Learning (Gamification)
- 1.5. Learning Difficulties Associated with the Teaching-Learning of Biology and Geology
  - 1.5.1. The Language of Science and the Language of School Science
  - 1.5.2. Difficulties Arising from the School Environment
  - 1.5.3. Difficulties Arising from Ways of Thinking
  - 1.5.4. Concrete and Formal Thinking
  - 1.5.5. Misconceptions in Biology
  - 1.5.6. Misconceptions in Geology
  - 1.5.7. Teaching Strategies to Overcome Learning Problems Associated with Biology and Geology
- 1.6. General Aspects of Teaching Activities Classification and Selection Activity Types: Problems
  - 1.6.1. Definition and Importance of Sciences in Activities, Exercises vs. Activities
  - 1.6.2. General Activity Classification
  - 1.6.3. Criteria for the Design and/or Teaching Activities Selection Blooms Taxonomy Revised
  - 1.6.4. Classification of Activities in Science Classes
  - 1.6.5. Problem and Classification Definition
  - 1.6.6. Problem Solving
  - 1.6.7. Methodological Proposals to Improve Problem Solving

- 1.7. Practical Activities and Activities Outside the Classroom
  - 1.7.1. Practical Work in Science
  - 1.7.2. Classification of Practical Work
  - 1.7.3. Factors Affecting the Difficulty of Practical Assignments
  - 1.7.4. Importance of the Use of the Environment in the Teaching of Natural Sciences
  - 1.7.5. Choice of the Place to Carry Out the Activity
  - 1.7.6. Types of Activities Outside the Classroom According to the Time They are Carried Out
  - 1.7.7. Types of Activities Outside the Classroom According to Their Relation to the Contents of the Syllabus
  - 1.7.8. Types of Activities Outside the Classroom According to Its Methodological Approach
- 1.8. General Aspects of Teaching Resources Conventional Resources in the Specialty of Biology and Geology
  - 1.8.1. What Are Teaching Resources?
  - 1.8.2. Classification of Teaching Resources
  - 1.8.3. Selection of Teaching Resources
  - 1.8.4. The Textbook
  - 1.8.5. The Conventional Resources in the Classroom of Biology and Geology
  - 1.8.6. The Conventional Resources in Laboratories of Biology and Geology
  - 1.8.7. The Conventional Resources Outside the Classroom of Biology and Geology
- 1.9. Information and Communication Technologies (ICTs) Educational Resources in the Classroom of Biology and Geology
  - 1.9.1. Concept and Characteristics of Information and Communication Technologies (ICTs)
  - 1.9.2. ICT Teaching Possibilities
  - 1.9.3. Emergence of New Educational Modalities Following the Use of ICTs
  - 1.9.4. Technical Requirements to the Use of ICTs in the Classroom
  - 1.9.5. Integration of Educational Technology to the Classroom
  - 1.9.6. Web 2.0 and the Virtual Classroom
  - 1.9.7. Emerging Educational Technologies
  - 1.9.8. Websites for Searching and Obtaining ICT Resources
  - 1.9.9. Virtual Laboratories
  - 1.9.10. Video Games and Serious Games
  - 1.9.11. Augmented Reality (RA)
  - 1.9.12. Virtual Reality (VR)
- 1.10. The Evaluation of Learning in the Subjects from the Specialty of Biology and Geology in High School Teaching and Professional Training
  - 1.10.1. Evaluation: Concept and Basic Characteristics
  - 1.10.2. Why Evaluate and What to Evaluate?
  - 1.10.3. Evaluation Systems
  - 1.10.4. Types of Evaluations
  - 1.10.5. Educational Performance: Satisfactory vs. Sufficient
  - 1.10.6. Evaluation and Grading Criteria and Evaluable Learning Standards
  - 1.10.7. Evaluation Sessions
  - 1.10.8. Introduction to the Learning Evaluation Techniques and Instruments in Experimental Sciences
  - 1.10.9. Observation Techniques and Instruments
  - 1.10.10. Dialogues/Interviews
  - 1.10.11. Review of Class Work
  - 1.10.12. Tests
  - 1.10.13. Surveys/Questionnaires
  - 1.10.14. The Evaluation of Learning in the Subjects Assigned to the Specialty of Biology and Geology in ESO, High School and Professional Training



*Apply the techniques provided by this program and create a good learning environment in your classroom"*

05

# Methodology

This training program offers a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH Education School we use the Case Method

In a given situation, what should a professional do? Throughout the program students will be presented with multiple simulated cases based on real situations, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method.

*With TECH, educators can experience a learning methodology that is shaking the foundations of traditional universities around the world.*



*It is a technique that develops critical skills and prepares educators to make decisions, defend their arguments, and contrast opinions.*

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

Our University is the first in the world to combine case studies with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.



*Educators will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we have trained more than 85,000 educators with unprecedented success in all specialties. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by our learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialist educators who teach the course, specifically for the course, so that the teaching content is really specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, with the latest educational advances, and to the forefront of Education. All this, first-hand, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



#### Interactive Summaries

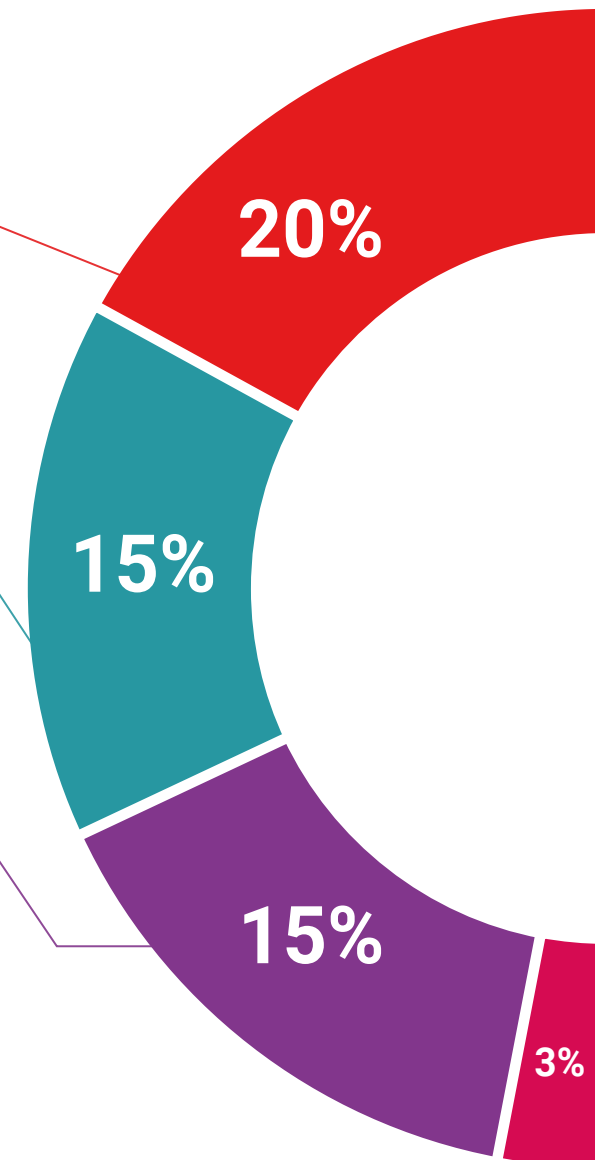
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



**Testing & Retesting**

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises: so that they can see how they are achieving your goals.



**Classes**

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



**Quick Action Guides**

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



06

# Certificate

The Postgraduate Certificate in Biology and Geology Teaching guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



The image features two black graduation caps (mortarboards) against a blue sky with light clouds. The caps are positioned diagonally, with one in the foreground and another slightly behind it. The background is split into a white lower half and a red upper half by a diagonal line.

“

*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"*

This program will allow you to obtain your **Postgraduate Certificate in Biology and Geology Teaching** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Biology and Geology Teaching**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.



## Postgraduate Certificate Biology and Geology Teaching

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# Postgraduate Certificate Biology and Geology Teaching

