



19th International Congress of Speleology 38º Congresso Brasileiro de Espeleologia

Syllabus – Short Course

Caves and Environmental Licensing in Brazil: An Overview of Legislation and Required Studies

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Instructor: Matheus H. Simões

Event: 19th International Congress of Speleology and 38º Congresso Brasileiro de Espeleologia

Target Audience: Environmental analysts, consultants, public administration and private sector professionals from various productive sectors (mining, hydroelectric power, wind energy, linear infrastructure, etc.), researchers, and anyone interested in the topic.

Prerequisites for Enrollment (education/prior knowledge): No minimum requirements; open to all interested in the topic.

Venue: Main Auditorium (building entrance), Institute of Geosciences (IGC), Federal University of Minas Gerais (UFMG)

Language: Portuguese

Date: July 19th, 2025

Duration: 8 hours (including a 1-hour lunch break) – 8:00 AM to 12:00 PM and 1:00 PM to 5:00 PM

Capacity: 30 participants



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Objectives

- Present the context of speleological heritage in Brazil and its interface with different types of development projects (mining, hydroelectric power, wind energy, highways, agriculture, tourism, etc.);
- Discuss relevant studies and contexts for environmental licensing processes in Brazil (exploration, significance assessment, monitoring, studies on the area of influence, etc.);
- Provide a concise overview of various international approaches to environmental licensing involving caves (examples from Australia, Colombia, USA, France, etc.);
- Encourage reflection on balancing economic and social development with the preservation of Brazil's speleological heritage.

Justification and Course Relevance

Karst landscapes, including caves, are unique environments with distinctive physical and biological conditions, representing a field of knowledge still developing in Brazil. These environments host significant ecological components (e.g., bats, endemic species, areas of hydrological importance), historical elements (e.g., archaeological and paleontological records), and sociocultural aspects (e.g., religious practices, tourism uses).

The importance of speleological heritage in Brazil is reflected in the current legislation, which is considered one of the most specific and complex worldwide for this subject. The legislation defines the necessary procedures for environmental licensing processes, as well as methodologies for relevant studies aimed at protecting speleological heritage while accommodating the demands of economic development in karst regions.

Balancing the preservation of natural underground cavities—and speleological heritage as a whole—with national economic and social development requires a comprehensive understanding of the subject by all stakeholders involved in licensing processes (regulatory agencies, private sector, civil society organizations, and the public).

The opportunity to promote discussions and disseminate current approaches used in licensing processes involving caves contributes to reconciling the preservation of Brazil's speleological heritage with the advancement of various economic sectors. Additionally, learning about international practices related to licensing processes



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involving speleological heritage offers a valuable opportunity for critical analysis of how these issues are managed in Brazil, fostering reflection on the best strategies for protecting national speleological heritage amidst growing demands for economic and socio-environmental development in the country.

Course Content

1. **Caves:** How they are formed, unique characteristics in different lithologies, and their relationship with humanity;
2. **Summary of International Approaches:** Environmental licensing processes linked to speleological heritage worldwide;
3. **Brazilian Speleological Legislation:** History, laws, decrees, normative instructions, ordinances, and resolutions, and how to interpret and apply them;
4. **Key Studies in the Licensing Process and Recommended Sequence:** Speleological prospecting and mapping, speleological diagnostics (biospeleology, geospeleology, paleontology, archaeology), assessment of cave significance, speleological areas of influence, impact evaluation, speleological compensation measures;
5. **Post-Licensing Studies:** Methods for controlling and mitigating impacts on speleological heritage (biological, seismic, photographic, hydrological, climatic monitoring, and others).

Instructor's Biography

Matheus H. Simões holds a Bachelor's degree in Biological Sciences from the Centro Universitário de Lavras – UNILAVRAS (2010) and a Master's degree in Applied Ecology from the Federal University of Lavras (UFLA, 2013), focusing on Cave Ecology and Conservation. Since 2011, he has conducted research in partnership with the Center for Studies in Subterranean Biology (CEBS) at UFLA, coordinated by Professor Rodrigo Lopes Ferreira.

He has worked as an Environmental Analyst since 2012, specializing in speleological studies, and has directly participated in over 50 environmental licensing processes involving speleological heritage. During the same period, he has contributed to research addressing central issues related to environmental licensing for caves. He is currently a member of the Speleology and Ferrous Technology Management team at Vale S.A.

Link to CV Lattes: <http://lattes.cnpq.br/9895401489115668>