ACADEMIC YEAR: 2019-2020

COURSE: **Wildland fires protection, Fire Ecology and Burnt areas Restoration**	
TYPE OF EDUCATIONAL ACTIVITY: Basic	
TEACHER: Angelo Nolè	
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Phone: : 0971 205358	Mobile: 3405748600
Language: italiano	

ECTS: (lessons / tutorials/practice): 8	n. of hours: 56 hours of lessons 16 hours of practice	Campus: Potenza School: SAFE Program: LM Forest and Environmental Sciences	Semester: II semester

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course contents will cover aspects related to the prevention, control and ecology of fire in forest ecosystems Main course contents are: the role of fire as an ecological and a disturbance factor, functional responses of forest ecosystems to fires, wildland fire definition, wildland fires from global to local scale, wildland fires causes, the study of combustion and heat transmission processes, driving and determinant factors, fire types, fire behaviour predictive models, fuel models, fire prevention plans, application of remote sensing for fire risk and fire danger estimation, national legislation and political measures for wildfires defence, AIB approach for wildland fire control and prevention, burnt areas recovery and restoration techniques.

- **Knowledge and understanding:** The course through frontal classroom lessons and field exercises aims at acquiring the knowledge of topics related to the phenomenon of forest fires and at the same time understanding the interactions between wildland fires and the main forest ecosystems ecological processes. In addition, the course intends to transfer the knowledge and ability to understand fire risk forecasting patterns and fire behaviour as a function of both prevention and forestry prevention activities.

- **Applying Knowledge and understanding skills**: the ability to transfer knowledge gained by *in situ* identification of the main fuel models and the ability to quantify fuel loads in order to predict fire risk and fire behaviour as function of the main environmental variables. Ability to understand, depending on the different wildland fire behaviours, the most appropriate active fighting techniques to be implemented in order to fight and extinguish wildland fires. Ability to understand and quantify fire intensity through the analysis and observation of fire damages on vegetation. Ability to transfer the knowledge acquired in order to implement forestry prevention practices in the planning and management of forest resources.

- **Making judgements**: knowledge of main interactions between wildland fire and forest ecosystems ecological processes will allow the student to judge independently the degree of fire risk in a certain area, the prevention activities to be implemented in order to reduce fire risk and the wildfire alert activation. At the end of the course the student will also be able to judge and plan the appropriate restoration techniques for the burned area depending on the specific vegetation and site characteristics.

- **Communication skills:** acquisition of fire specific technical terminology and language, logical communication of the acquired knowledge. Transfer of knowledge about forest fires, aimed at the prevention and communities awareness rising related to wildfires, through the presentation of statistical data or acquired in the field.

- **Learning skills**: ability to organize the information and knowledge gained during lessons and practices by integrating them with detailed information about the scientific and recommended literature.

PREREQUIREMENTS
- LT (3-year degree): Forest and Environmental Science
- Ecology and structure of Forest ecosystem in the Mediterranean Region

SYLLABUS

Lessons

Wildland fire ecology, the role of fire as an ecological and a disturbance factor, functional responses of forest ecosystems to fires, wildland fire definition, wildland fires from global to local scale, wildland fires causes, the study of combustion and heat transmission processes, driving and determinant factors, fire types, fire behavior predictive models, fuel models, fire prevention plans, application of remote sensing for fire risk and fire danger estimation, national legislation and political measures for wildfires defence, AIB approach for wildland fire control and prevention, burnt areas recovery and restoration techniques

Practices

Softwares and Models implementation, Use of the FN/AIB National database, Remote sensing and GIS for fire risk assessment and fire risk thematic mapping. Field practices for the evaluation of vegetation fuels

TEACHING METHODS
56 hours of lessons and 16 hours of laboratory and field practices. During practices students will be asked to implement softwares and models studied during the course.

EVALUATION METHODS
Oral examination at the end of the course. The oral examination will include also questions related to the topics addressed during the practice hours

TEACHING METHODS AND ON-LINE EDUCATIONAL MATERIAL

- On-line Educational material available at:
  https://drive.google.com/drive/folders/1NsM1zdnP8qQ7Q--X817oDv8eLAAc1EUw?usp=sharing
- Teaching material distributed in classroom
- Blasi C., Bovio G., Corona P., Marchetti M., Maturani A. (a cura di), 2004 - Incendi e complessità ecosistemica . Dalla pianificazione forestale al recupero ambientale . Ministero dell'Ambiente e della Tutela del Territorio - Società Botanica Italiana.
- Chandler et Al., 1983 - Fire in Forestry . Wiley and Sons.
- Leone, V. & Lovreglio, R., 2009. Gli incendi nello spazio rurale: un disastro annunciato. Atti del Terzo Congresso Nazionale di Selvicoltura. Taormina (ME), 16-19 ottobre 2008. Accademia Italiana di Scienze Forestali, Firenze, p. 334-338.
- Lovreglio, R. & Leone, V., 2003. Tecniche di indagine delle cause di incendi boschivi. L'Italia Forestale e Montana. Fasc.1: 22-33
- Legge-quadro in material di incendi boschivi n°. 353 del 21 novembre 2000.
- Regione Basilicata, 2009. Piano Antincendio Regionale (PAR) - Piano Triennale per la lotta agli Incendi Boschivi 2009 – 2011.
- Regione Basilicata, 2016. Programma Annuale Antincendio 2016
- Leone, V., Lovreglio, R., Bovio,G., Cesti, G., 2008. Manuale per Direttore Operazioni Spegnimento Incendi Boschivi . Corpo Forestale dello Stato

– Landi, B. & Landi, S. (2002). Organizzazione e tecnica dalla lotta contro gli incendi boschivi. Laurus Robuffo.
– Sauvagnargues-Lesage, S., Picard, C. Vasconcelos, S., Xanthopoulos, G. 2006. Fire suppression management and planning: A state of the art: final version. EUFIRELAB - Euro-Mediterranean Wildland Fire Laboratory, a "wall-less" Laboratory for Wildland Fire Sciences and Technologies in the Euro-Mediterranean Region Deliverable D-09-07.
– Xanthopoulos, G., Arianoutsou-Faragitaki, M, Prodo, R., Giovannini, G., Daskalakou, E., Andiopoulos, P., Radea, K., Kazanis, D., 2006. Methods to study fire impacts on plants (forest stands, shrubs, herbaceous taxa), soil and fauna. EUFIRELAB - Euro-Mediterranean Wildland Fire Laboratory, a "wall-less" Laboratory for Wildland Fire Sciences and Technologies in the Euro-Mediterranean Region Deliverable D-04-10.
– Peter R. Robichaud, P. R., Beyers, J.L., Neary, D.G. 2000. Evaluating the Effectiveness Of Postfire Rehabilitation Treatments. USDA General Technical Report RMRS-GTR-63
– Vallejo, V.R., Aronson, J., Pausas, J. & Cortina, J. 2006. Restoration of Mediterranean Woodlands Chapter 14 in Restoration Ecology. The New Frontier. J. Van Andel and J. Aronson (Eds.). Blackwell Publ., Oxford.

INTERACTIONS WITH STUDENTS

- in the office at planned days/hours (usually on Wednesday)

- email,

- mobile

EXAMINATION SESSIONS (Forecast)

Online Calendar:
https://unibas.esse3.cineca.it/Home.do

EVALUATION BOARD

Angelo Nolè

Agostino Ferrara

Francesco Ripullone

SEMINARS BY EXTERNAL EXPERTS   YES