PARTIAL DIFFERENTIAL EQUATIONS IN APPLIED SCIENCES

MAT/05 - 6 CFU - 1° semestre

Docente titolare dell’insegnamento

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Orario ricevimento: martedì 14-16 e giovedì 11-13

OBIETTIVI FORMATIVI

Knowing how to construct and understand mathematical models that describe qualitatively and quantitatively some phenomena related to the environment. Knowing how to use the main concepts of differential equation theory for application in the biological, geological and environmental fields. Knowing how to predict and justify the evolution of simple phenomena, described by ordinary differential equations, related to the biological, geological and environmental sciences.

MODALITÀ DI SVOLGIMENTO DELL’INSEGNAMENTO

Frontal class.

Should teaching be carried out in mixed mode or remotely, it may be necessary to introduce changes with respect to previous statements, in line with the programme planned and outlined in the syllabus.

Learning assessment may also be carried out on line, should the conditions require it.

PREREQUISITI RICHIESTI

Calculus, first course. Basic elements of geometry. Study do the graph of a variable.

FREQUENZA LEZIONI

Obligatory.
CONTENUTI DEL CORSO


3. Models for environmental systems. Model for the evaluation of the green quality. Model for the evolution of metastability in an environmental system. Model for the evaluation of the production and diffusion of biological energy in an environmental system.


TESTI DI RIFERIMENTO

1. S. Motta, M.A. Ragusa, A. Scapellato – Methods and mathematical models - ed. CULC (2020)

ALTRO MATERIALE DIDATTICO

http://studium.unict.it/dokeos/2019/courses/15209/
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<td>1 Knowing how to construct and understand mathematical models that describe qualitatively and quantitatively some phenomena related to the environment. Knowing how to use the main concepts of differential equation theory for application in the biological, geological and environmental fields. Knowing how to predict and justify the evolution of simple phenomena, described by ordinary differential equations, related to the biological, geological and environmental sciences.</td>
<td>S. Motta, M.A. Ragusa, A. Scapellato – Mathematical Models – ed. CULC (2020).</td>
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<td>4 nonlinear differential equations of the first order and for more autonomous systems.</td>
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VERIFICA DELL'APPRENDIMENTO

MODALITÀ DI VERIFICA DELL'APPRENDIMENTO

Frontal exam. Criteria for assigning the final grade: verification of the achievement of the educational objectives expressed through the European Descriptors of the qualification.

Verification of learning can also be carried out electronically, should the conditions require it.

ESEMPI DI DOMANDE E/O ESERCIZI FREQUENTI