

## FIȘA DISCIPLINEI

### 1. Date despre program

1.1 Instituția de învățământ superior	Universitatea Babeș-Bolyai Cluj-Napoca
1.2 Facultatea	Știința și Ingineria mediului
1.3 Departamentul	Știința Mediului
1.4 Domeniul de studii	Știința mediului
1.5 Ciclul de studii	Master
1.6 Programul de studiu / Calificarea	Gestiunea și protecția mediului Dezvoltare sustenabilă și managementul mediului

### 2. Date despre disciplină

2.1 Denumirea disciplinei	Global climate change						
2.2 Titularul activităților de curs	Prof. dr. Calin Baci						
2.3 Titularul activităților de seminar	Prof. asoc. Dr. Giuseppe Etiope						
2.4 Anul de studiu	1	2.5 Semestrul	2	2.6. Tipul de evaluare	E	2.7 Regimul disciplinei	Ob

### 3. Timpul total estimat (ore pe semestru al activităților didactice)

3.1 Număr de ore pe săptămână	3	Din care: 3.2 curs	2	3.3 seminar/laborator	1
3.4 Total ore din planul de învățământ	42	Din care: 3.5 curs	28	3.6 seminar/laborator	14
Distribuția fondului de timp:					ore
Studiul după manual, suport de curs, bibliografie și notițe					30
Documentare suplimentară în bibliotecă, pe platformele electronice de specialitate și pe teren					15
Pregătire seminarii/laboratoare, teme, referate, portofolii și eseuri					10
Tutoriat					4
Examinări					4
Alte activități: .....					
3.7 Total ore studiu individual		55			
3.8 Total ore pe semestru					
3.9 Numărul de credite		6			

### 4. Precondiții (acolo unde este cazul)

4.1 de curriculum	•
4.2 de competențe	•

### 5. Condiții (acolo unde este cazul)

5.1 De desfășurare a cursului	•
5.2 De desfășurare a seminarului/laboratorului	•

## 6. Competențele specifice acumulate

<b>Competențe profesionale</b>	<ul style="list-style-type: none"> <li>• Understanding the functioning and the variability of the climate system</li> <li>• Understanding the anthropogenic influence on the climate system</li> <li>• Understanding the various current theories on climate change</li> <li>• Action plans for preventing climate change and mitigating its effects</li> </ul>
<b>Competențe transversale</b>	<ul style="list-style-type: none"> <li>• Aggregation of experimental data into a complex model</li> <li>• Team work for the analysis of complex phenomena</li> </ul>

## 7. Obiectivele disciplinei (reieșind din grila competențelor acumulate)

7.1 Obiectivul general al disciplinei	<ul style="list-style-type: none"> <li>• Global climate change is a topic intensively debated by the scientific international community, but also by the public at large. The proposed course offers to the students the necessary knowledge to understand how the climate change is pushing, as well as its mechanisms. The arguments supporting the different theories connected to climate change are discussed. The potential effects of climate change on the society, and the adaptation and mitigation actions are assessed.</li> </ul>
7.2 Obiectivele specifice	<ul style="list-style-type: none"> <li>• Understanding the climate system and its modifications at a planetary scale</li> <li>• Improving students' capacity to analyze complex systems and to compare various theories based on arguments.</li> </ul>

## 8. Conținuturi

8.1 Curs	Metode de predare	Observații
Climate: definitions, variability, sensitivity, transitions, feed-back	Interactive lecture	
The climate system and its components	Interactive lecture	
The atmosphere: processes and radiations, energy balance	Interactive lecture	
The importance of oceans for the climate system	Interactive lecture	
The role of the biosphere in the climate change	Interactive lecture	
Cryosphere and geosphere, influence on the climate	Interactive lecture	
The reasons of climate change – forcing	Interactive lecture	
Paleoclimate change, paleoclimatological investigations	Interactive lecture	
Natural variability of climate in the geological history	Interactive lecture	
Climate change during the industrial era	Interactive lecture	
Anthropogenic and natural causes of climate change	Interactive lecture	
Future climate change assessment and implications on the natural and social systems	Interactive lecture	

Reducing the negative effects of climate change, diminishing the societal impact	Interactive lecture	
Future research directions, final messages	Interactive lecture	
<b>Bibliography</b> Balteanu D., Serban M. (2005) Modificarile globale ale mediului – O evaluare interdisciplinara a incertitudinilor. Ed. Coresi, 231 p. Busuioc A. Et al. (2010) Variabilitatea si schimbarea climei in Romania. Ed. ProUniversitara, 226 p, Bucuresti. * * * (2012) Climate Change: Evidence, Impacts, and Choices, Division on Earth and Life Studies; National Research Council, 36 p. * * * (2012) America's Climate Choices, National Research Council, 144 p. * * * (2001) Climate Change Science: An analysis of some key questions. Committee on the Science of Climate Change. National Academy Press. IPCC (2007) Intergovernmental Panel on Climate Change <a href="http://www.ipcc.ch/">http://www.ipcc.ch/</a> AR4 * * * (2010) Advancing the Science of Climate Change. National Research Council, 528 p. * * * (2010) Adapting to the Impacts of Climate Change. National Research Council, 292 p.		
8.2 Seminar	Metode de predare	Observatii
Climate change tendencies at a european and regional level	Dialogue with the students	
Components of the climate system	Dialogue with the students	
Assessment of the amplitude of climate change at different scales	Applications solving	
Investigating the climate change in the geological past	Dialogue with the students	
Causes of climate change	Dialogue with the students	
Material loss and ecosystems degradation generated by climate change	Applications solving	
Climate change effects – application to a defined region	Individual or team project	
<b>Bibliography</b> IPCC (2013) Intergovernmental Panel on Climate Change <a href="http://www.ipcc.ch/">http://www.ipcc.ch/</a> AR5 * * (2001) Climate Change Science: An analysis of some key questions. Committee on the Science of Climate Change. National Academy Press. IPCC (2007) Intergovernmental Panel on Climate Change <a href="http://www.ipcc.ch/">http://www.ipcc.ch/</a> AR4 * * * (2010) Advancing the Science of Climate Change. National Research Council, 528 p. * * * (2010) Adapting to the Impacts of Climate Change. National Research Council, 292 p.		

## 9. Coroborarea conținuturilor disciplinei cu așteptările reprezentanților comunității epistemice, asociațiilor profesionale și angajatori reprezentativi din domeniul aferent programului

<ul style="list-style-type: none"> <li>• Understanding the reasons of climate change</li> <li>• Competencies in the action plans for mitigating the negative effects of climate change</li> </ul>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## 10. Evaluare

Tip activitate	10.1 Criterii de evaluare	10.2 metode de evaluare	10.3 Pondere din nota finală
----------------	---------------------------	-------------------------	------------------------------

10.4 Curs	Understanding the notions that have been discussed, capacity to use them in practical cases.	colocviu	30%
	Synthesis of the acquired knowledge	colocviu	30%

10.5 Seminar/laborator	Solving the practical themes that have been proposed, and the reliability of the results	Verificare pe parcurs	20%
	The capacity to solve concrete applications.	Verificare pe parcurs	20%

10.6 Standard minim de performanță			
Understanding the main notions that have been discussed			
<ul style="list-style-type: none"> <li>• The ability to synthesize data in order to obtain a complete view on the study topics</li> </ul>			

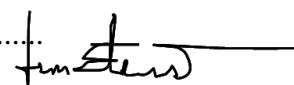
Data completării

04.04.2018

Semnătura titularului de curs



Semnătura titularului de seminar



Data avizării în departament

.....

Semnătura directorului de departament

.....