

<b>1. COURSE SYLLABUS OF Fruit Tree Ecosystems</b> Accad. year 2011/12			
<b>2. PROFESSOR</b>	Massimo Tagliavini Francesca Scandellari	<b>3. ECTS CREDITS</b>	3
<b>OFFICE</b>	K.303 AND 304	<b>SCIENTIFIC FIELD</b>	AGR/03
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<b>WEB PAGE</b>	<a href="http://www.unibz.it/en/sciencetechnology/welcome/default.html">http://www.unibz.it/en/sciencetechnology/welcome/default.html</a>		
<b>COURSE PAGE</b>	<a href="http://www.unibz.it/en/sciencetechnology/progs/master/default.html">http://www.unibz.it/en/sciencetechnology/progs/master/default.html</a>		
<b>4. COURSE HOURS</b>	<b>LECTURES</b>	18 hours	
	<b>EXERCISES AND LABS</b>	12 hours	
<b>5. STUDY PROGRAMME</b>	International Master of Fruit Science	<b>6. MAJOR IN</b>	.....
<b>7. YEAR</b>	II	<b>SEMESTER</b>	I
<b>8. PROGRAMME STATUS</b>	<b>INSERT:</b>	<b>9. COURSE LANGUAGE</b>	English
<b>10. DESCRIPTION</b>	<p>The course focuses on the functioning of orchard systems under different managements and environmental conditions. Findings from recent research will be given as examples to illustrate how orchard ecosystems respond to agricultural practices. . During the course the students will study what are the factors that control cycling of elements in orchard ecosystems and how interactions between biotic and abiotic processes lead to positive or negative feedbacks. The course aims at scaling up from single tree physiology to orchard ecosystem physiology, offering the student knowledge on the use of resources for a sustainable fruit production</p>		
<b>11. TEACHING FORMAT and ORGANIZATION</b>	<p>The course includes frontal lectures and field activities during which the student will gain experience in the methodologies available for assessing ecological parameters linked to energy fluxes, carbon, nutrient and water cycles.</p>		

<b>12. LEARNING OUTCOMES</b>	<p><b>Knowledge and understanding</b></p> <p>The acquired knowledge will allow the students to understand the complex interactions occurring in fruit tree ecosystems in relation to biogeochemical cycles and use of resources; this is nowadays an essential knowledge in developing sustainable strategies of orchard management. The students will learn to understand the basic concepts of orchard ecosystem ecology and to quantitatively approach the ecological processes occurring at ecosystem level.</p>
<b>13. TOPICS</b>	<p>Energy:  thermal and radiation balances  human-derived energy use in the orchard</p> <p>Carbon cycle:  net primary productivity  photosynthesis and allocation  root growth, turnover and lifespan  soil and root respiration  net ecosystem productivity  C – footprint</p> <p>Nutrients cycles:  sources of nutrients  nutrient fluxes  recycling of nutrients within the orchard system  monitoring nutrient losses</p> <p>Water cycle:  assessing water needs in the orchard  water use efficiency  plant-soil water status measurements</p>
<b>14. BASIC BIBLIOGRAPHY</b>	<p>Selected chapters from Aber J and G. Melillo 2001 Terrestrial Ecosystems. 2<sup>nd</sup>. Ed. Hartcourt Press, and online handout material available for students.</p>
<b>15. ELIGIBILITY</b>	<p>Students regularly enrolled at the 2nd year of the International Master of Fruit Science.</p>
<b>16. RECOMMENDATIONS</b>	
<b>17. STUDENT ASSESSMENT</b>	<p>Coursework will be weighted as follows: final written exam (80%), and lab reports (20%).</p>