



6D_SGQ_CALENDARIO CORSO - REV. 1.0 del 15/06/2016

Academic year 2016/2017

MASTER COURSE:

**Land and Water Resources Management:
Irrigated Agriculture**

UNIT 1: INTRODUCTORY COURSES (6 ECTS)

| 3 – 21 October | <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|--|--|--|---|--|--------------|
| | 3-7 Oct | Sub-Unit 1 | | | 2 |
| | | <ul style="list-style-type: none"> Welcome and registration Institute and course presentation Information and Communication Technologies Criteria for bibliographic research English language | O. Lorusso G. Inchingolo J. Strippoli | CIHEAM-Bari (Italy) CIHEAM-Bari (Italy) Bari (Italy) | |
| | 10-14 Oct | Sub-Unit 2 | | | 2 |
| | | <ul style="list-style-type: none"> Application of Geographic Information Systems in Land and Water Resources Management | D. D'Agostino M. Todorovic A. Daccache | CIHEAM-Bari (Italy) CIHEAM-Bari (Italy) | |
| | 17-21 Oct | Sub-Unit 3 | | | 2 |
| | <ul style="list-style-type: none"> Pedology and soil survey investigation | P. Zdruli | CIHEAM-Bari (Italy) | | |
| UNIT 2: WATER AND LAND RESOURCES MANAGEMENT (10 ECTS) | | | | | |

24 October – 25 November

| <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|--------------|---|--|---|--------------|
| 24-28 Oct | Sub-Unit 1 | | | 2 |
| | <ul style="list-style-type: none"> • Soil physics: water and solute movements | A. Coppola | Basilicata University (Italy) | |
| 31Oct- 4 Nov | Sub-Unit 2 | | | 2 |
| | <ul style="list-style-type: none"> • Surface water hydrology management | U. Fratino | Polytechnic of Bari (Italy) | |
| 7-11 Nov | Sub-Unit 3 | | | 2 |
| | <ul style="list-style-type: none"> • Groundwater hydraulics and pollution in agricultural settings • Seminar: Groundwater hydraulic tests (10 Nov, 3 - 5 p.m.) | J. Kaluarachchi V. D'Oriano | Utah State University (USA) University Of Florence (Italy) | |
| 14-18 Nov | Sub-Unit 4 | | | 2 |
| | <ul style="list-style-type: none"> • Soil erosion and desertification: monitoring, modelling and mitigation technologies | V. Bagarello | University of Palermo (Italy) | |
| 21-25 Nov | Sub-Unit 5 | | | 2 |
| | <ul style="list-style-type: none"> • Water harvesting techniques | W. Critchley | Sustainable Land Management Associates (UK) | |

UNIT 3:IRRIGATION MANAGEMENT: SOIL-WATER-PLANT-ATMOSPHERE CONTINUUM (8 ECTS)

| 28 November – 23 December | <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|---|--|--|---|---|--------------|
| | 28 Nov- 2 Dec | Sub-Unit 1 | | | 2 |
| | | <ul style="list-style-type: none"> • Agrometeorology, + Seminar on climate change | N. Jovanovic | CSIR, Natural Resources and Environment (South Africa) | |
| | 5-10 Dec | Sub-Unit 2 | | | 2 |
| | | <ul style="list-style-type: none"> • Crop response to water and water use efficiency | Sayed Azem Ali | Crops for the Future Research Centre, Malaysia, & Nottingham University (U.K) | |
| | 12-16 Dec | Sub-Unit 3 | | | 2 |
| | | <ul style="list-style-type: none"> • Crop water requirements and practical irrigation scheduling | R. L. Snyder | University of Davis (USA) | |
| | 19-23 Dec | Sub-Unit 4 | | | 2 |
| | <ul style="list-style-type: none"> • Crop growth modelling: Eco-physiological and engineering aspects • Seminar : Agricultural aspects of irrigation methods (21 Dec, 3-6 p.m.) | M. Todorovic A. Caliandro | CIHEAM-Bari (Italy) University of Bari (Italy) | | |
| CHRISTMAS HOLIDAYS (24 December 2016 -1st January 2017) | | | | | |
| UNIT 4: IRRIGATION MANAGEMENT: FARM LEVEL (6ECTS) | | | | | |
| 2 – 20 January | <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
| | 2-5 Jan | Sub-Unit 1 | | | 2 |
| | | <ul style="list-style-type: none"> • Design, operation, maintenance and performance evaluation of farm trickle irrigation systems | A. Daccache | CIHEAM-Bari (Italy) | |
| | 9-13 Jan | Sub-Unit 2 | | | 2 |
| | | <ul style="list-style-type: none"> • Design, operation, maintenance and performance evaluation of sprinkler irrigation systems | L. S. Pereira | Technical University, Lisbon (Portugal) | |
| | 16-20 Jan | Sub-Unit 3 | | | 2 |
| | <ul style="list-style-type: none"> • Design, operation, maintenance and performance evaluation of surface irrigation systems | E. Playan | National Research Council, Zaragoza (Spain) | | |
| UNIT 5: IRRIGATION MANAGEMENT: AT DISTRIBUTION SYSTEMS LEVEL (6ECTS) | | | | | |

23 January – 10 February

| <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|---|-----------------|--|--|--------------|
| 23-27 Jan | Sub-Unit 1 | | | 2 |
| <ul style="list-style-type: none"> • Design, operation, maintenance and performance evaluation of large scale open channel distribution systems • <i>Technical visit to Consorzio Stornara & Tara</i> | | L. Mateos | Sustainable Agriculture institute, Cordoba (Spain) | |
| 30 Jan- 3 Feb | Sub-Unit 2 | | | 2 |
| <ul style="list-style-type: none"> • Design, operation, maintenance and performance evaluation of large scale pressurized irrigation systems • <i>Technical visit to Consorzio Capitanata</i> • Seminar: Determining soil hydraulic properties by field-measured infiltration rates. (1st Feb, 3-5 p.m.) | | N. Lamaddalena V. Bagarello | CIHEAM-Bari (Italy) University of Palermo (Italy) | |
| 6- 10 Feb | Sub-Unit 3 | | | 2 |
| <ul style="list-style-type: none"> • Water management optimisation • Seminar: Water resources management: the FAO approach (8 Feb, 3-5 p.m.) | | F. Lebdi Maher Salman | FAO/SFE, Addis Ababa, Ethiopia FAO, Rome Italy | |

UNIT 6: USE OF NON CONVENTIONAL WATER RESOURCES: TECHNICAL AND ENVIRONMENTAL ISSUES (8 ECTS)

13 February – 10 March

| <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|---|-------------------|--|---|--------------|
| 13-17 Feb | Sub-Unit 1 | | | 2 |
| <ul style="list-style-type: none"> • Salinity control in relation to irrigation | | D. Isidoro | CITA-DGA, Zaragoza (Spain) | |
| 20-24 Feb | Sub-Unit 2 | | | 2 |
| <ul style="list-style-type: none"> • Drainage and drainage systems design and management | | Henk Ritzema | Water Resources Management Group Wageningen University & Research (The Netherlands) | |
| 27 Feb- 3 March | Sub-Unit 3 | | | 2 |
| <ul style="list-style-type: none"> • Use of low quality waters: environmental and technical aspects (a.m.) • Seminar 1: wastewater reuse in irrigation farming (1st March, 3-6 p.m.) • Seminar 2: Non-conventional water use (2 March, 3-6 p.m.) | | T. A. Tawfic R. Choukr Allah A. Hamdy | NWRC-CLEQM, Cairo (Egypt) IAV, Agadir(Morocco) CIHEAM-Bari (Italy) | |
| 6-10 March | Sub-Unit 4 | | | 2 |
| <ul style="list-style-type: none"> • Urban wastewater treatment for agricultural reuse | | A. Lopez | IRSA-CNR (Italy) | |

UNIT 7: IRRIGATION MANAGEMENT: INSTITUTIONAL, ECONOMIC AND ENVIRONMENTAL ASPECTS (10 ECTS)

13 March – 14 April

| <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|-------------|---|------------------------------|--|--------------|
| 13-17 March | Sub-Unit 1 | | | 2 |
| | <ul style="list-style-type: none"> Principles of farm economics | G. Malorgio | Faculty of Agriculture, Bologna (Italy) | |
| 20-24 March | Sub-Unit 2 | | | 2 |
| | <ul style="list-style-type: none"> International economics and the role of agriculture in economic development Seminar: Geopolitics of water in the Mediterranean and Middle East (21-22 March, 3-5 p.m.) | D. Salvatore P. Blanc | Fordham University, New York (USA) IAM Montpellier (France) | |
| 27-31 March | Sub-Unit 3 | | | 2 |
| | <ul style="list-style-type: none"> Cost/Benefit analysis | G. Zanni | University of Ferrara (Italy) | |
| 3-5 Apr | Sub-Unit 4 | | | 1 |
| | <ul style="list-style-type: none"> Cost recovery | J. Sagardoy | FAO, Rome (Italy) | |
| 6-7 Apr | Sub-Unit 5 | | | 1 |
| | <ul style="list-style-type: none"> IMT and PIM: Monitoring and Evaluation | R. Khadra | CIHEAM-Bari (Italy) | |
| 10-14 Apr | Sub-Unit 6 | | | 2 |
| | <ul style="list-style-type: none"> Optimal water allocation in irrigation sector | K. Louhichi | INRA-AgroParis-Tech, (France) | |

STUDY TOUR 16-23 April 2017

UNIT8: CASE STUDY- IRRIGATION PROJECT DESIGN (10 ECTS)

24 April – 16 June

| <i>DATE</i> | <i>SUB-UNIT</i> | <i>LECTURER</i> | <i>INSTITUTIONAL AFFILIATION</i> | <i>ECTS*</i> |
|---|-------------------|---|---|--------------|
| 24-28 Apr | Sub-Unit 1 | | | 2 |
| • Agronomic part of project | | M. Todorovic | CIHEAM-Bari (Italy) | |
| 2- 5 May | Sub-Unit 2 | | | 2 |
| • Economic part of project | | K. Louhichi | INRA-AgroParis-Tech (France) | |
| 8-12 May | | | | |
| • Synthesis of agronomic & economic part of project | | M. Todorovic K. Louhichi | CIHEAM-Bari (Italy) INRA-AgroParis-Tech (France) | |
| • Seminars: Water economics (10-11 May) | | LUM University | | |
| 15-19 May | Sub-Unit 3 | | | 2 |
| • Engineering part of project | | R. Khadra | CIHEAM-Bari (Italy) | |
| 22-26 May | Sub-Unit 4 | | | 2 |
| • Engineering part of project | | N. Lamaddalena | CIHEAM-Bari (Italy) | |
| • Technical visit to a Pumping stations site | | R. Khadra | CIHEAM-Bari (Italy) | |
| 29 May- 2 June | Sub-Unit 5 | | | 1 |
| • Cost/benefit analysis of irrigation project | | A.Scardigno | CIHEAM-Bari (Italy) | |
| 5-9 June | Sub-Unit 6 | | | 1 |
| • Environmental impact assessment. Applications | | K. Abu Zeid | CEDARE, Cairo (Egypt) | |
| 12-16 June | Sub-Unit 7 | | | |
| • Conclusions and Synthesis | | Scientific Staff | CIHEAM-Bari (Italy) | |

FINAL EXAM

International Jury (19-21 June)