

SUMMER PRACTICAL TRAINING (NR 490) SYLLABUS SUMMER 2007

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TRAINING OBJECTIVES: The training aims to give students the hands-on experience required to fulfill their formal classwork education. The training will provide students with a broad working knowledge in the areas of Forestry and Range Management. The training will also integrate classwork and laboratory sessions in areas and topics that were not covered in formal on-campus class and laboratory sessions. Great emphasis will be directed toward natural resources measurements and nursery operations.

HANDOUTS: Handouts will be made available at the training webpage listed above. The handouts will cover all of the topics and activities incorporated in your summer training. Having handouts does not necessarily mean that you do not have to take field and classroom notes. Taking notes will help you to study and prepare for your oral and written exams as well as writing reports and memos. I strongly recommend having a three ring binder so you can keep all of your handouts organized. This will also allow you to store it neatly for later use.

REFERENCES:

1. Avery, T.E., and Burkhart, H.E. 2002. Forest measurements. 5th ed. McGraw-Hill companies Inc., New York.
2. Pyne, S.J., Andrews, P.L., and Laven, R.D. 1996. Introduction to wildland fire. 2nd ed. John Wiley and Sons Inc., New York.
3. Smith, D.M., Larson, B.C., Kelty, M.J., and Ashton, P.M.S. 1997. The practice of silviculture. 9th ed. John Wiley and Sons Inc., New York.
4. Holechek, J.L., Pieper, R.D., Herbel, C.H. 1998. Range management. 3rd ed. Prentice-Hall Inc., New Jersey.
5. Zohary, M. 1966. Flora Palestina. The Israel Academy of Sciences and Humanities, Jerusalem.
6. Ffolliott, P.F., Brooks, K.N., Gregersen, H.M., and Lundgren, A.L. 1995. Dry land Forestry. John Wiley and Sons Inc., New York.
7. Porter, R.F., Christensen, S., and Schiermacker-Hansen, P. 2004. Birds of the Middle East. Princeton University Press, Hong Kong.
8. Hartmann, H.T., Kester, D.E., Davies, F.T., and Geneve, R.L. 2002. Plant propagation. 7th ed. Prentice-Hall Inc., New Jersey.
9. Goor, A.Y., and Barney, C.W. 1976. Forest tree planting in arid zones. 2nd ed. The Ronald Press Company, New York.

10. RSCN. 2005. RSCN field research manual. RSCN, Amman.
11. Amr, Z.S. 2000. Mammals of Jordan. UN Environment Program.

GUEST SPEAKERS AND LECTURERS: During the training period several lecturers and guest speakers will be invited to cover the wide array of topics incorporated in the training sessions. The students are encouraged to ask questions and take advantage of the expertise of those lecturers and guest speakers. Just keep in mind that lecturers and guest speakers are doing this voluntarily and at the expense of their own personal and work related time. Treat each lecturer and guest speaker professionally and in a way that reflects positively on your school (JUST) and your major (Forestry and Range Management).

REQUIRED EQUIPMENT AND ATTIRE: The following two tables list the equipment and attire that you will be required to wear or bring with you every day:

Table 1. A list of equipment that you **must bring** with you everyday.

Clipboard	Ruler	Pens	Lunch or snacks
Water container	Notebook	Clear tape	Camera (optional)
Paper	Calculator	Backpack	Prayer rug (optional)
First aid kit (optional)	Pencils		

Table 2. A list of attire that you **have to** wear everyday.

Cruiser's vest (optional)	Gloves	Baseball-hat or cap
Good hiking boots	Bandana (optional)	
Jeans or Carhartt® pants	Sunglasses (optional)	
Long-sleeve shirt		

UNIVERSITY EQUIPMENT: In several training sessions, you (individually or as a group) will be handed a piece or pieces of equipment that are the property of JUST. Vandalism to any of this equipment or any university property will not be tolerated. Students will be responsible of replacing deliberately damaged or lost equipment as well as equipment damage or loss that may result from negligence or misuse. Only equipment damage that may result from normal tear and wear will be tolerated.

Table 3. A detailed list of required equipment.

ITEM	QUANTITY	SOURCE	DUE DATE	NOTES
Compass	5			
Clinometer	5			
Diameter tapes	5			
Tree and small calipers	5			
Increment borers	5			
Drip torch	2			
Chainsaw	2			
Shovels	5			
McLeod	5			
Rake	5			
Pulaski	5			
Pick axe	5			
Cutter and pick mattocks	5			
Flagging	12 rolls			
GPS	5			
Bark gauge	5			
Spherical densiometer	5			
GRS densitometer	5			
Tally counters	5			
Gas	1 liter			
50 meter tapes	10			
Quadrats:				
Rectangle = 0.5X2 m				
Rectangle = 0.5X1 m				
Circle = 1m ² , 3.5 m circum.				
Circle = 0.5 m ² , 2.5 m circum.	6			
Square = 1m ²				
Square = 0.5 m ²				
Bee Wax	10 units			
WD40	10 cans			
Rope	10 m long			
Diesel	3 liters			
Water container	3			

GRADING: The course final grade will be calculated as the sum of your points in the oral and written exams as well as your points on the reports, memos, and assignments. Oral and written exams will be scheduled and announced at the training webpage. Always be ready for pop quizzes and oral exams. Not attending one of the exams or not turning in assignments will result in a ZERO for that exam or assignment. No make-up exams will be conducted.

CHEATING AND PLAGIARISM: Cheating and plagiarism will not be tolerated. Cheating in any of the exams or assignments will result in the following combined:

1. A ZERO in that assignment
2. Cancellation of registration
3. Suspension for one semester

For more information on the policy on academic dishonesty consult JUST student handbook.

ATTENDANCE AND PUNCTUALITY: The student is encouraged to review the attendance policy that is available in the student handbook. Training will cover a wide array of topics and not attending one of the sessions will put you and your crew at a great disadvantage. Attendance roll will be maintained and unexcused absence of more than 10% of the number of lectures will result in an automatic **F** for the course. **As the student, it is your responsibility to ensure that you are marked as present on the attendance sheet.**

STUDENTS WITH DISABILITIES: No preferential treatment will be offered to any student. However, students with documented disabilities, that require accommodations to participate in the training, shall contact me immediately to discuss their situations.

TRANSPORTATION: Transportation means will be provided by JUST. Conduct yourself properly at all times. Departure times are concrete (i.e. none negotiable, not flexible, etc...) so be there five minutes before the scheduled departure time.

MEDICAL CARE: A first-aid kit will be available at all training sessions. Please be cautious and do not joke around with equipment or tools. Keep in mind that in many training sessions we will be too far from any health clinics or hospitals and any injuries you may experience or inflict may become life threatening. **So again do not joke around!!!**

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

NURSERY OPERATIONS¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	June 24	Training Introduction and Logging Technology	Syllabus Logging Tech. Movie Student Groups List	NA	M. Bataineh	Providing students with an overview of the whole training program, what to expect from the training program, and what would be expected from them by the end of the training program. The students will watch a movie that will discuss the history of Forestry and the various techniques used in logging.	laptop; projector; lecture room
1	June 25	Propagation Methods and Seed Collection	TBA ³	8	M. Bataineh A. Alkinany	Students will collect seeds from a variety of tree species within JUST arboretum. Students will review propagation methods and methods of seed treatment.	Nursery
	June 26	Preparation of Soil Mixes	TBA	8	M. Bataineh A. Alkinany	Students will prepare soil mixes and fill sowing flats with mixes in preparation for sowing the previously collected seeds.	Nursery
	June 27	Seed Treatments and Sowing	TBA	8	M. Bataineh A. Alkinany	Students will treat collected seed to overcome dormancy and sow the seeds in the previously prepared flats.	Nursery
	June 28	Plant after-care and	TBA	8	M. Bataineh A. Alkinany	Students will take care of the emerging seedlings.	Nursery

¹This topic will be carried out on campus.

²Refer to references list.

³ TBA: To Be Announced.

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

SEED COLLECTION AND HANDLING¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	July 01	Sampling Collected and Stored Seeds	TBA ³		TBA	Students will learn how to sample stored and collected seeds for testing purposes.	Seed Center
	July 02	Seed Extraction	TBA		TBA	Students will be familiarized with various seed extraction methods.	Seed Center
2	July 03	Seed Storage	TBA		TBA	Students will be familiarized with various seed storage methods and the importance of seed storage. Students will discuss the factors that may affect seed viability during storage.	Seed Center
	July 04	Seed Testing	TBA		TBA	Students will initiate testing of samples of collected and stored seeds. Seed testing may include seed purity, seed viability, and embryo test.	Seed Center
	July 05	Seed Trees	TBA		TBA	Students will be familiarized with the concept of seed tree orchards and its applications.	Seed Center

¹This topic will be carried out at the Seed Center for Forest Trees (Yajoz Forest Nursery). JUST department of transportation shall be contacted to provide transportation means to and from the training site. The Seed Center for Forest Trees shall be contacted to arrange for visits and training details.

²Refer to references list.

³TBA: To Be Announced.

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

PLANTATIONS ESTABLISHMENT¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	July 08	Site Preparation	Controlling Competing Vegetation	3	M. Bataineh M. Rababah	Students will prepare a site for planting forest trees. Student's activities will include scalping, reshaping of soil surface, and disposal of slash or vegetation residue.	grub hoes; pick axes;
	July 09	Planting Density and Spatial arrangement of seedlings	Plantations Density; Seedlings Spatial Arrangement	3	M. Bataineh M. Rababah	Students will prepare planting holes. The students will utilize several initial densities, spatial arrangements, and spacing distances.	tapes; compasses; ropes; pick axes; grub hoes; shovels;
3	July 10	Tree Planting	Containerized Seedlings	3	M. Bataineh M. Rababah	Students will plant and water containerized seedlings.	seedlings; knives; grub hoes; shovels;
	July 11	Tree Planting	Planting Methods	3	M. Bataineh M. Rababah	Students will plant and water containerized seedlings.	seedlings; knives; grub hoes; shovels;
	July 12	Tree Planting	Protecting New Plantations	3	M. Bataineh M. Rababah	Students will be introduced to sources of losses in artificially regenerated stands and will continue planting and watering containerized seedlings.	seedlings; knives; grub hoes; shovels;

¹This topic will be carried out on campus. This will require allotting an area on campus for planting. Irrigation matters could be resolved by depending on wastewater. A tractor may be required for plowing and a water-tanker may be required if no irrigation system is to be installed. The Ministry of Agriculture/Nursery Department shall be contacted to provide tree seedlings. JUST department of transportation shall be contacted to provide transportation means to and from the training site. Motorized auger may be required to speed up the process of preparing planting holes.

²Refer to references list.

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

APPLICATIONS OF SURVEYING AND VEGETATION IDENTIFICATION¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	July 15	Vegetation Identification	Species List; Family Characteristics	5	M. Bataineh M. Gharaibeh	Students will get familiarized with the understory and overstory vegetation of the reserve and adjacent areas. The students will learn the most distinguishing characteristics of the most dominant tree and understory species. The students will learn how to use a compass and distance measurements to locate predetermined points. Students will be given the opportunity to improve their orientation skills. Students will be introduced to the principles and concepts of stem mapping. Students will delineate the reserve boundary using the available GPS units and will learn how to collect GPS points of predetermined targets.	magnifying glasses; ziplock bags; presses;
4	July 16	Distance Measurements and Orientation	Compass; Pacing	1	M. Bataineh	Students will learn how to use a compass and distance measurements to locate predetermined points. Students will be given the opportunity to improve their orientation skills. Students will be introduced to the principles and concepts of stem mapping. Students will delineate the reserve boundary using the available GPS units and will learn how to collect GPS points of predetermined targets.	compasses; tapes;
	July 17	Area Determination and Global Positioning System (GPS)	Area Determination; GPS	1	M. Bataineh	Students will delineate the reserve boundary using the available GPS units and will learn how to collect GPS points of predetermined targets.	tapes; compasses; GPS units;
	July 18	Contour Maps	Contour Maps	1	M. Bataineh	Students will learn how to read a contour map.	contour maps; lecture room; barometers;
	July 19	Elevation, Slope, and Aspect Determination	Physiographic Features	1	M. Bataineh	Students will determine elevation for multiple predetermined points. Students will determine aspect and slope inclination for several locations within the reserve.	GPS units; clinometers; compasses; PVC pipes;

¹This topic will be carried out at Prince Hamzah Natural Reserve. JUST department of transportation shall be contacted to provide transportation means to and from the training site.

²Refer to references list.

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

RANGE INVENTORY AND FOREST MENSURATION¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	July 22	Range Inventory	Vegetational Mapping	4	M. Bataineh M. Alhamad	Students will delineate and map various vegetation communities.	GPS units; tapes; PVC pipes; clippers; paper bags; air dry oven; balance;
	July 23	Range Inventory	Vegetation Attributes Determination	4	M. Bataineh M. Alhamad	Students will determine cover, frequency, density, and biomass for understory vegetation.	PVC pipes; clippers; paper bags; air dry oven; balance;
5	July 24	Range Inventory	None	None	M. Bataineh M. Alhamad	Students will continue determining understory vegetation attributes. Students will be familiarized with the software utilized in analyzing vegetation attributes data.	clippers; paper bags; air dry oven; balance; computers; dtapes; bark gauges;
	July 25	Forest Mensuration	Measuring Standing Trees I	1	M. Bataineh	Students will learn how to measure diameter, height, crown radius, bark thickness, cover, seedling counts, etc...	clinometers; densiometers; tally counters; increment
	July 26	Forest Mensuration	Measuring Standing Trees II	1	M. Bataineh	Students will learn how to take increment cores to estimate tree ages. In addition students will learn how to take tree cross sections as well as be introduced to the principle of cross dating.	borers; wax; wd40; straws; envelopes; grid paper; chainsaws;

¹This topic will be carried out at Prince Hamzah Natural Reserve. JUST department of transportation shall be contacted to provide transportation means to and from the training site.

²Refer to references list.

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

FOREST INVENTORY AND SILVICULTURAL TREATMENTS¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	July 29	Forest Inventory	Simple Random and Systematic Sampling	1	M. Bataineh	Students will sample the reserve utilizing a systematic sampling system with fixed-area sampling units.	tally sheets; compasses; dtapes; clinometers; bark gauges; tapes; densiometers; tally sheets; compasses;
6	July 30	Forest Inventory	Stratified Random Sampling	1	M. Bataineh	Students will continue sampling the reserve or sample one of the other natural reserves such as Dibben's.	dtapes; clinometers; bark gauges; tapes; densiometers; tally sheets; compasses;
	July 31	Forest Inventory	None	None	M. Bataineh	Students will continue sampling the reserve or sample one of the other natural reserves.	dtapes; clinometers; bark gauges; tapes; densiometers;
	Aug. 01	Silvicultural Treatments	Pruning	3	M. Bataineh	Students will perform pruning on some <i>Pinus halepensis</i> trees within JUST campus.	pruning saws; clippers;
	Aug. 02	Silvicultural Treatments	Thinning	3	M. Bataineh	Students will perform hypothetical thinning utilizing the data collected during forest inventory sessions. One tree will be cut down to demonstrate the correct way of cutting trees.	computer laboratory; chainsaws

¹This topic will be carried out at Prince Hamzah Natural Reserve as well as at other reserves within the Kingdom. JUST department of transportation shall be contacted to provide transportation means to and from the training site.

²Refer to references list.

RANGE MANAGEMENT AND FORESTRY TENTATIVE TRAINING OUTLINE FOR SUMMER OF 2007

RANGE IMPROVEMENT AND WILLIFE MANAGEMENT¹:

Week	Date	Topic	Handout	References ²	Guest Speaker/Lecturer	Justification	Equipment
	Aug. 05	Range Improvement	Prescribed Burning	2	M. Bataineh	Students will perform a prescribed burning in an area within JUST campus in presence of the civil defense department. The prescribed burning will be conducted on a relatively calm day and all safety precautions will be taken into account.	drip torch; diesel; gasoline; hand tools; match;
7	Aug. 06	Wildlife Management	Wildlife Identification	TBA ³	M. Bataineh A. Rountree	Students will be introduced to the most abundant wildlife species within the reserve.	
	Aug. 07	Wildlife Management	Wildlife Sampling	TBA	M. Bataineh A. Rountree	Students will utilize and learn wildlife sampling techniques.	
	Aug. 08	Students Evaluation	Student Evaluation Form	None	M. Bataineh	Students will be evaluated based on their progress throughout the training sessions.	None
	Aug. 09	Instructors/Training/ Guest speakers Evaluation	Evaluation Forms	None	M. Bataineh	The students will evaluate all the components of the training program and provide feedback regarding training.	None

¹Part of this topic will be carried out at Prince Hamzah Natural Reserve whereas the other part will be carried out on campus. JUST department of transportation shall be contacted to provide transportation means to and from the training site.

²Refer to references list.

³ TBA: To Be Announced.