NAISMA Online IVS Management Training Program **ISM 211 – *Overview of IVS Management Programs*** Course Syllabus – Spring, 2018  
Whiteville, North Carolina USA

| ISM 211 | Overview of Invasive Species Management Programs | 3 | 0 | 0 | 3 |
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| **Course Prefix & Number** | **Course Title** | **Class Hours** | **Lab Hours** | **Clin / Intern Hours** | **Semester Credit Hrs.** |
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| **COURSE DESCRIPTION**  ISM 211 provides an overview of federal, state, and local programs that are established to manage invasive species on public and private lands in the United States. Upon completion of the course, students should be able to discuss and to demonstrate an understanding of the goals and objectives, as well as activities that are conducted to carry out the mission of the agencies and organizations that are showcased. In addition, the course leads to assessment of global awareness and information literacy general education outcomes.  **Note:** In addition, the course leads to assessment of global awareness and information literacy. | | | | | |
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| **PREREQUISITES:** ISM 110 | | | | | |
| **COREQUISITES:** None | | | | | |
| **REQUIRED TEXTS:** ISM 211 is totally computer and internet based. Students will need to download and print some materials from the course home page or the internet. However, the course does not require the use of any published textbooks or other printed materials as in traditional classes.  **Software:**  Students must have Microsoft **Word** to successfully complete assignments in this course If you are not sure which software you have, contact **Mr. Bryan Dailey**, NAISMA Online Learning Platform Administrator, at 941-677-8082 for assistance. | | | | | |
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| **COURSE OBJECTIVES AND LEARNING OUTCOMES.** Upon completion of this course, students will be able to:  1. Describe the history and accomplishments of the USDA Carolinas Witchweed Eradication Program.  2. Describe federal and state efforts to manage Japanese Dodder in South Carolina and California.  3. Understand the various components of the California Noxious Weed Prevention and Control Program.  4. Discuss Federal/State Plant Pest and Disease Programs, such as Gypsy Moth, Asian Longhorned Beetle, Red Imported Fire Ant, Foot and Mouth Disease, and Sudden Oak Death.  5. Explain the overall goals and objectives of the APHIS Wildlife Management Programs for Beaver and Nutria, Feral Pigs, Gambian Pouched Rat, and etc.  6. Describe the USDA Forest Service Invasive Species Management Program.  7. Describe the U.S. Fish and Wildlife Invasive Species Management Program.  8. Describe the U.S. National Park Service Invasive Species Management Program.  9. Describe the U.S. Bureau of Land Management Invasive Species Management Program.  10. Describe invasive species management efforts by the Federal Highway Administration in cooperation with State Departments of Transportation.  11. Demonstrate **global awareness of invasive species programs** through completion of a written assignment that highlights goals and objectives of a county weed and pest management program in Canada by:   * Describing the overall mission and goals of the Clearwater County (Alberta) Agricultural Services Department * Explaining how the Clearwater County Ag Services Department develops programs to enhance the wellbeing of the agricultural community. * Explaining the invasive species management objectives of the Clearwater County program.   12. Discuss the benefits of interagency partnering in addressing invasive plants through Cooperative Weed Management Areas and Invasive Plant Task Forces  13. Demonstrate general education information literacy through the development of technical fact sheets on 10 high profile invasive species by:   * Gathering technical information and detail on each species through internet research. * Demonstrating the ability to use clear and specific language in describing subject species. * Demonstrating competency in editing and revising each fact sheet. * Organizing developed material in a standard format * Demonstrating the use of computer applications and programs such as MS Word the internet, and e-mail to organize, display, and distribute information. | | | | | |
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| **COURSE OUTLINE Unit 1. Federal/State Noxious Weed Programs - The USDA/Carolinas Witchweed Eradication Program – Biology and Control Methods.** I. Introduction.  II. Witchweed Biology and Life Cycle.  III. Witchweed – A Threat to Grain Production in Africa and the United States.  A. Witchweed – A Major Threat to Grain Production in Africa.  B. Purple Witchweed (*Striga hermonthica*) in Africa.  C. Witchweed - A Threat to other Grain Producing Areas of the United States.  IV. Witchweed Eradication Methodology.  A. Witchweed Survey.  1. Detection and Delimiting Survey.  2. Appraisal Survey.  3. Release Survey.  4. **Table 1.** Witchweed Survey Acreage in NC and SC in 2008.  5. Witchweed Survey Methodology.  B. The Witchweed Program Bounty System – Cash Reward for Detection and Reporting of New Witchweed Infestations.  C. Witchweed Control – Manual, Mechanical, and Chemical Methods.  D. Summary of Treatments Conducted in 2007-2008.  **1. Table 2**. Chemical Treatments in North Carolina in 2008. **2. Table 3.** Chemical Treatments in South Carolina in 2008. **3. Table 4.** Chemical Treatments in Different Crops in 2008.  E. The Witchweed Program Point System.  **1. Table 5.** Infested acres in North Carolina quarantined counties by point value – December 31, 2008.  **2. Table 6.** Infested Acres in South Carolina Quarantined Counties by Point Value – December 31, 2008.  **3. Table 7.** Number of infested farms and fields in North Carolina with fewer than five points – by County, December, 31, 2008. **4. Table 8.** Number of infested farms and fields in South Carolina with fewer than five points – by County, December, 31, 2008.  F. Regulation of High Risk Articles.  1. **Figure 1.** Witchweed Quarantine Area in North Carolina.  2. **Figure 2.** Witchweed Quarantine Area in South Carolina.  G. Phytosanitary Certificates for Movement of Soil Contact Commodities out of the Witchweed Quarantine Area.  **Unit 2. Federal/State Noxious Weed Programs - The USDA/Carolinas Witchweed Eradication Program – Science Support, Current Status, and Outlook.** I. The USDA Whiteville Methods Development Center – Science Support for the Witchweed Eradication Program.  A. Establishment of the Whiteville Methods Development Center – Science Support for the USDA Carolinas Witchweed Eradication Program.  B. USDA Whiteville Methods Development Center – Facilities. C. Career Profile – Dr. Robert E. Eplee, Director, USDA Whiteville Methods Development Center – 1965-1995. D. Discovery of Ethylene Gas for Suicidal Germination of Witchweed Seeds – Major Scientific Breakthrough in the Witchweed Eradication Program. E. Development of Specialized Equipment to Inject Ethylene Gas into Witchweed Infested Fields.  F. Expanded Mission of the Whiteville Methods Development Center.  II. Current Status of the USDA-Carolinas Witchweed Program.  A. Personnel in the Witchweed Eradication Program.  B. Total Infested Acres at the End of 2008.  **C. Figure 1.** Trend in Witchweed Infested Acreage from 2002 through 2008.  III. Future Outlook for the Witchweed Program.  A. Use of Color-Coded Boxes for Soil Samples from Witchweed Infested Fields.  B. Use of GPS Survey and GIS Mapping Software.  C. Impact of Increased Corn Acreage on the Witchweed Program.  D. Fumigation of Fields with Methyl Bromide and other Soil Sterilants.  IV. Conclusions.  V. Literature Citations.  **Unit 3. Federal/State Noxious Weed Programs – Management of Japanese Dodder in South Carolina, Texas, and California.**  I. Introduction.  A. Japanese Dodder - Description and Biology. B. Japanese Dodder - Methods of Reproduction and Spread. C. Comparison of Japanese Dodder to Native Dodders in the U.S.  1. Color  2. Stems  3. Intensity of Infestations  4. Habitats Generally Invaded D. History of Japanese Dodder in the United States.  E. Federal Regulation of Japanese Dodder in the United States.  F. State Regulation of Japanese Dodder.  G. Sale of Japanese Dodder as a Component of Chinese Herbal Medicine on the Internet.  H. Threats Posed by Japanese Dodder.  1. Potential Impacts on Agriculture.  2. Potential Impacts on Landscaping.  3. Potential Impacts on Native Ecosystems.  II. Eradication of Japanese Dodder in South Carolina - 1992-1995.  A. Project Overview.  B. Flame Incineration of Seeds on the Soil Surface.  III. Management of Japanese Dodder in Houston, Texas.  A. Documented Host Range of Japanese Dodder in Texas.  B. Eradication of Japanese Dodder in Houston, Texas.  IV. Management of Japanese Dodder in California.  A. Regulation of Japanese Dodder by CDFA.  B. Known Distribution of Japanese Dodder in California.  V. Control Methods for Japanese Dodder.  A. Manual Control – Removal of Dodder and Nearby Host Plants.  B. Chemical Control – Control of Dodder on Host Plants with Post-  emergent Herbicides.  C. Chemical Control – Control of Dodder with Systemic Treatments of Host  Plants.  D. Chemical Control – Use of Soil Sterilants to Kill Seeds in the Soil and  Germinated Seedlings.  E. Heat Treatments - High Heat Flame Treatments to Kill Seeds on/near  the Soil Surface. VI. Other Resources.  **Unit 4. State Noxious Weed Programs – The California Department of Food and Agriculture - Noxious Weed Prevention and Control Program.**  I. Introduction.  A. Mission of the CDFA Plant Health and Pest Pest Prevention Services Division.  B. Overview of the California Noxious Weed Prevention and Control Program. II. CDFA Pest Exclusion Branch.  A. CDFA Pest Exclusion Branch – Exterior Pest Exclusion Efforts.  B. CDFA Pest Exclusion Branch – Interior Pest Exclusion Efforts.  C. CDFA Pest Exclusion Branch – Nursery, Seeds and Quality Cotton Inspection.  1. CDFA Plant Nursery Inspection Program.  2. CDFA – Plant Nursery Inspection Program – Clean Stock Program.  D. CDFA Pest Exclusion Branch – Noxious Weed Program. III. CDFA Pest Detection/Emergency Projects Branch. IV. CDFA Integrated Pest Control Branch.  A. CDFA Integrated Pest Control Branch – Noxious Weed Program.  1. The CDFA Weed and Vertebrate Eradication Program.  2. The CDFA Hydrilla Eradication Program.  3. The CDFA Biological Control Program.  4. Summary of CDFA Integrated Pest Control - Weed Control Projects. V. CDFA Plant Pest Diagnostics Center.  A. CDFA Plant Pest Diagnostics Center – Tasks and Services. VI. Authority for Addressing Noxious Weeds in California.  A. Outline of California Food and Agricultural Code Provisions that are Related to Invasive  Plant Management.  B. Overview of California Food and Agricultural Code Provisions that are Related to Invasive  Plant Management.  1. Types of Invasive Species Covered under the Code.  2. CDFA Authority for Surveys and Investigations.  3. Plant Quarantine and Pest Control - Definitions.  4. Plant Quarantines and Pest Control - General Provisions.  5. Plant Quarantine and Pest Control – Enforcement.  6. Scope of Plant Quarantines and other Pest Regulations.  7. CDFA Authority for Abatement (Control).  8. Financial Responsibility for Abatement.  9. Weed Eradication Areas.  10. Designation of Weed Free Areas by CDFA.  11. Dissemination of Pest Seeds.  C. Link to Complete Summary of California Weed Laws. VII. California State Noxious Weed List.  A. California State Noxious Weed List – Weeds in each Category. VIII. CDFA Noxious Weed Information Project.  A. CDFA Noxious Weed Information Project – Ongoing Projects. IX. CDFA Noxious Times Newsletter. X. CDFA Encycloweedia. XI. Other Online Resources about Noxious Weeds in California.  **Unit 5. Federal/State Plant Pest and Disease Programs – Gypsy Moth (*Lymantria dispar*).** I. Introduction. II. History of Gypsy Moth in North America.  III. Life Cycle and Host Range.  IV. Impacts.  V. Natural Enemies.  VI. Survey and Detection Methods.  A. Gypsy Moth Survey.  B. Use of Pheromone Traps.  VI. Control Methods.  A. Manual Control of Small Outbreaks.  B. Chemical Control Methods.  C. Biological Insecticides.  1. Gypchek – a Viral Insecticide for Control of Gypsy Moth.  2. Disparvirus – a Viral Insecticide for Gypsy Moth Produced in Canada.  4. *Bacillus thuringiensis* – a Bacterial Insecticide for Gypsy Moth Control.  5. *Bacillus thuringiensis* var. kurstaki - the BT Variety that is Effective on  Gypsy Moth Larvae.  VII. Distribution and Spread of Gypsy Moth in North America.  A. Spread of Gypsy Moth in the U.S. – 1900-1994.  B. Artificial Spread of Gypsy Moth by People.  C. Current Distribution of Gypsy Moth in the United States.   D. Current Distribution of Gypsy Moth in Canada.  VIII. The U.S. Department of Agriculture “*Slow the Spread of Gypsy Moth*” Campaign.  A. The Gypsy Moth Slow the Spread Foundation, Inc.  B. Benefits of the Gypsy Moth Slow the Spread Program.  C. Gypsy Moth Slow the Spread Program – Partners.  IX. U.S. Federal/State Gypsy Moth Regulatory Programs.  X. Gypsy Moth Management Zones in the U.S. and Canada.  XI. Gypsy Moth Regulated Areas in Canada.  XII. Link to the Canadian Food Inspection Agency Policy on Gypsy Moth Management. XIII. Recent News Stories about Gypsy Moth in the United States.  XIV. More Online Resources for Gypsy Moth.  XV. Links to other Federal/State Plant Pest Programs.  A. Red and Black Imported Fire Ants.  B. Asian Longhorned Beetle.  C. Emerald Ash Borer.  D. Exotic Fruitfly Control Programs.  E. Foot and Mouth Disease.  F. Sudden Oak Death.  **Unit 6. USDA APHIS Wildlife Services – Injurious Wildlife Management Programs – The Beaver Management Assistance Program in North Carolina.** I. Introduction. II. The American Beaver – Description and Biology.  A. APHIS Wildlife Services – Beaver Fact Sheet. III. Problems Caused by Beavers. IV. Overview of Beaver Trapping Methods.  A. Beaver Kill Traps.  B. Beaver Leg Traps.  C. Beaver Snares  D. Live Trap Cages. V. Beaver Dam Removal. VI. History of Beaver in North Carolina. VII. The North Carolina Beaver Management Assistance Program.  A. NC-BMAP – General Implementation.  B. NC-BMAP - Administration and Funding.  C. 2007-2008 North Carolina Beaver Management Assistance Program Report.   D. Impact of the 2007 Drought on Beaver Management in North Carolina.  E. Career Profile - Gerald “Butch” Adams – Supervisory Wildlife  Management Specialist – Whiteville, North Carolina. VIII. More Interesting Facts about Beavers.  A. American Beaver – The National Animal of Canada.  B. World’s Largest Beaver Statue – Beaverlodge, Alberta, Canada. IX. Other APHIS Wildlife Management Services Programs.  A. Feral Hogs in Southeastern North Carolina.  B. Nutria Management Fact Sheet.  C. Coyote Management Fact Sheet.  D. Gambian Giant Pouched Rat in the Florida Keys.  1. Detection and Delimiting Surveys on Grassy Key in 2005.  2. Toxic Bait Preference Study on Grassy Key.  3. Pilot Eradication Project on Crawl Key.  4. Full Eradication Project on Grassy Key.  5. Early Results of the Eradication Project on Grassy Key.  6. Outlook for the Future.  7. Use in Detecting Land Mines and Tuberculosis in Africa. X. Online Resources.  **Unit 7. U.S. Forest Service – Invasive Species Management Program.** I. Introduction to the U.S. Forest Service.  A. History of the U.S. Forest Service.  B. Mission of the U.S. Forest Service.  C. U.S. Forest Service – Budget, Areas Managed, and Structure.  1. U.S. Forest Service – National Leadership and Program Staff.  2. U.S. Forest Service - Law Enforcement & Investigations.  3. U.S. Forest Service - National Forest System.  4. U.S. Forest Service - State and Private Forestry Program.  5. U.S. Forest Service - Research and Development Program.  6. U.S. Forest Service Regions.  7. Ranger Districts within the U.S. Forest Service Regions.  8. U.S. Forest Service - International Programs.  D. Overview of the U.S. Forest Service (Publication). II. Introduction to the U.S. Forest Service Invasive Species Management Program. III. The U.S. Forest Service National Strategy and Implementation Plan for Invasive  Species Management.  A. Overview of the Forest Service National Strategy for Invasive Species Management.  B. Link to the Forest Service National Strategy for Invasive Species Management  (Publication). IV. Overview of the Elements of the U.S. Forest Service Invasive Species Management Program.  A. USFS Invasive Species Prevention Program.  1. U.S. Forest Service – Guide to Noxious Weed Prevention Practices.  2. U.S. Forest Service - Guide to Preventing Accidental Introductions of Fresh Water  IVS.  3. U.S. Forest Service – Missoula Technology Development Center Portable Vehicle  Washer System.  B. USFS Invasive Species Early Detection and Rapid Response Program.  1. FICMNEW National EDRR System – 2003 Conceptual Design Plan.  C. USFS Invasive Species Control Program.  1. Back Country Road Maintenance and Weed Management (Publication).  D. USFS Invasive Species Rehabilitation and Restoration Program.  1. Restoration of Native Plant Species to the Blue Mountains of Eastern Oregon and  Washington. V. U.S. Forest Service Authorities for Invasive Species Management. VI. Species Profiles – High Profile Invasive Species Managed by the U.S. Forest Service. VII. Michael Ielmini – USFS Invasive Species Program Coordinator – Career Profile. VIII. More Online Resources.  **Unit 8. U.S. Fish and Wildlife Service – National Wildlife Refuge System.** I. Introduction.  A. U.S. Fish and Wildlife Service Regions. II. Invasive Species in FWS Refuges – General Impacts. III. Invasive Plants in U.S. Fish and Wildlife Service Refuges – Acres Infested, Acres Treated. IV. FWS National Wildlife Refuge System - Invasive Species Program Mission.   A. Mission of the National Wildlife Refuge Invasive Species Management  Program.  B. Mission of the FWS Partners for Fish and Wildlife and the FWS Coastal   Program.  C. Mission of the FWS Aquatic Invasive Species Program.  D. One Mission of the FWS Environmental Contaminants Program. V. Overview of Invasive Plant Problems on U.S. National Wildlife Refuges. VI. Costs Associated with Invasive Species Management on National Wildlife Refuges. VII. FWS Invasive Species Strike Teams – Mobile Response Units.  A. FWS Invasive Species Strike Teams – Operational Areas. VIII. The Role of Volunteers in Combating Invasive Species on FWS Refuges.  A. Accomplishments of the FWS Volunteer Invasive Plant Program.  B. The FWS Volunteer Invasive Plant Program Website.   C. Web-based Online Training for VIP Program Volunteers.   1. FWS Volunteer Invasive Plant Training Program - Organization and History  of the Refuge System.  2. FWS Volunteer Invasive Plant Training Program - The Role of Volunteers in  Managing Invasive Species in the National Wildlife Refuge System.   3. FWS Volunteer Invasive Plant Training Program - Invasive Plants - The Big  Picture.  4. FWS Volunteer Invasive Plant Training Program - Invasive Plant Biology  and Control.  5. FWS Volunteer Invasive Plant Training Program - Public Outreach and  Education. IX. Online Invasive Plant Management Training Modules for National Wildlife Refuge Staff.  A. Online Training for FWS Staff - Invasive Plant Management – Planning.  B. Online Training for FWS Staff - Assessing the Problem.  C. Online Training for FWS Staff - Invasive Plant Management Methods used on  FWS National Wildlife Refuges.  1. Online Training for FWS Staff - Physical Control Methods.  2. Online Training for FWS Staff - Chemical Control Methods.  3. Online Training for FWS Staff - Biological Control Methods.  4. Online Training for FWS Staff - Prescribed Grazing.  5. Online Training for FWS Staff - Prescribed Burning. X. Refuges at Serious Risk from Invasive Species – the Trempealeau National Wildlife Refuge in Wisconsin. XI. Weed Prevention Efforts - The Charles M. Russell National Wildlife Refuge Vehicle Weed Wash Program. XII. FWS Support of the Carolinas Beach Vitex Task Force. XIII. Interagency Coordination and Cooperation – Development of Cooperative Weed Management Areas in Florida. XIV. U.S. Fish and Wildlife Participation in the Federal/State Effort to Eradicate the Gambian Pouch Rat from the Florida Keys.   A. Beneficial Uses of the Gambian Pouch Rat – Detection of Landmines in  Africa.  B. Beneficial Uses of the Gambian Pouch Rat – Detection of Tuberculosis in  Humans. XV. USGS/FWS Student Weed Stopper Program.  A. Student Weed Stopper Program Fact Sheet. XVI. Federal Authority for U.S. Fish and Wildlife Service Invasive Species Activities. XVII. Michael Lusk – Invasive Species Coordinator for the FWS National Refuge System – 2004-2009 - Career Profile. XVIII. Literature Cited and Links to other Online Resources.  **Unit 9. U.S. National Park Service – Exotic Plant Management Teams.** I. Introduction to the National Park Service. II. Invasive Plant Management by the National Park Service.  A. NPS Partnerships for Invasive Plant Management.  B. Strategies for Managing Invasive Species on National Park Lands.  C. Introduction to the NPS Exotic Plant Management Teams.  D. NPS Exotic Plant Management Teams – Where they are Located.  E. NPS Exotic Plant Management Teams – National Map of Areas Served. II. NPS Exotic Plant Management Teams – General Overview.  A. Invasive Plant Management in National Parks - Cooperation and Collaboration.  1. Recent Examples of Cooperation and Collaboration.  B. Invasive Plant Management in National Parks - Inventory and Monitoring.  1. The Importance of Monitoring in the NPS EPMT Program.  2. Monitoring and EDRR in the Cascades National Park in Washington State.  C. Invasive Plant Management in National Parks - Prevention.  1. Recent Examples of Prevention Practices.  D. Invasive Plant Management in National Parks - Early Detection and Rapid Response.  1. Recent Examples of EDRR in Action.  E. Invasive Plant Management in National Parks - Treatment and Control.  1. NPS Exotic Plant Management Teams - Treatment and Control – Recent  Accomplishments.  2. 2008 Control Treatment Highlights.  F. Invasive Plant Management in National Parks - Restoration.  G. Summary of NPS Exotic Plant Management Team Program Accomplishments in 2008.III. NPS Exotic Plant Management Teams – 2008 Team Reports.  A. Alaska Region  1. Alaska EPMT  B. Pacific West Region  1. California EPMT  2. Lake Mead EPMT  3. North Cascades EPMT  4. Pacific Islands EPMT  C. Intermountain Region  1. Chihuahuan Desert / Shortgrass Prairie EPMT  2. Colorado Plateau EPMT  3.Gulf Coast EPMT  4. Northern Rocky Mountain EPMT  D. Midwest Region  1. Great Lakes EPMT   2. Northern Great Plains EPMT  E. Northeast Region  1. Mid Atlantic EPMT  2. Northeast EPMT  F. National Capital Region  1. National Capital Region EPMT  G. Southeast Region  1. Florida Caribbean Partnership EPMT  2. Southeast EPMT  **Unit 10. U.S. Bureau of Land Management – Invasive Plant Management Program.** I. Introduction to the Bureau of Land Management.  A. Lands Managed by the BLM.  B. More Facts about the BLM. II. The Weed Challenge on Public Lands. III. The BLM National Weed Program.  A. BLM National List of Invasive Weed Species of Concern. IV. Overview of Selected BLM State Weed Management Programs.  A. Weed Management on BLM Lands in Idaho.  1. Acres of Noxious Weeds on BLM Managed Lands in Idaho.  B. Weed Management on BLM Lands in Colorado.  1. Protection of Native Plant Communities on BLM Lands in Colorado.  i. BLM Colorado – Coloring Book - Wildflowers of Ponderosa Pine Forests.  ii. BLM Colorado – Coloring Book – Wildflowers of the Colorado Mountain Tops.  iii. BLM Colorado – Wildflower Poster.   2. Protection of Threatened and Endangered Species on BLM Lands in Colorado.  3. Management of Non-Native Invasive Plants on BLM Lands in Colorado.  C. Weed Management on BLM Lands in Nevada.  1. Rangeland Weeds in Nevada.   2. Overview of the BLM Nevada Weed Management Program. V. Guidelines for Weed Prevention and Management on Public Lands. VI. Guidelines for Citizen Involvement in Protecting Public Lands from Invasive Plants.  A. Prevention.  B. Early Detection and Rapid Response  C. Education and Awareness.  D. Weed Survey.  E. Invasive Plant Management Planning And Cooperation. VII. BLM State and Field Office Invasive Plant (Online) Resources. VIII. Other Internet Resources.  **Unit 11. Transportation Corridors – Federal Highway Administration and State Departments of Transportation.** I. Introduction to the Federal Highway Administration Roadside Vegetation Management Program.  A. Movement of Invasive Species Along Highway Corridors.  B. The U.S. Department of Transportation Roadside Vegetation Management Program – Guiding Principles. II. Trails Westward – An Historical Perspective. III. Public Expectations – Manicured Roadsides. IV. The Ever Changing Landscape of Roadside Vegetation Management.  A. Link to the Minnesota DNR’s Roadsides for Wildlife Program. V. New Approaches for Roadside Vegetation Management.  A. Weed Prevention.  1. Best Management Practices for Weed Prevention during Highway Construction and Maintenance.  B. Integrated Vegetation Management.  1. Tools for Roadside Vegetation Management.  i. Mowing.  ii. Chemical Control.  iii. Prescribed Burning.  iv. Biological Control.  v. Grazing with Sheep and Goats.  vi. Establishment of Native Grasses.  vii. Online Resource. Driving out Roadside Weeds. Art Gover, Penn State University.  C. Restoration.  1. Restoration Case Study – Salmon Pass in Idaho. VI. Constraints to Roadside Vegetation Management – Funding.  A. Other Constraints to Roadside Vegetation Management.  B. Fact Sheet - Kudzu in Ontario – Ontario Invasive Plant Council. September, 2009. VII. Successful State DOT Invasive Plant Management Partnerships.  A. The Greater Yellowstone Weed Coordinating Committee – Progenitor of the Weed Management   Area Concept.  B. Cooperative Weed Management Areas.  C. The Jordan Valley Interagency Weed Management Project in Malheur County, Oregon.  D. The Adirondack Park Invasive Plant Program in New York State.  E. The Arizona and Sonora, Mexico, Buffelgrass Partnership.  F. The Weeds Cross Borders Project in Washington State and British Columbia.  G. The Georgia Cogongrass Cooperative Weed Management Area. VIII. The Future - Roadsides in the 21st Century. IX. Federal Highway Administration Guidance to State Departments of Transportation (DOTs) on Invasive Species Issues.  A. Impacts of Executive Order #13112 on State DOT Vegetation Management Programs.  1. Impact of Executive Order 13112 on the Use of Federal Funds by State Departments of  Transportation.  2. Innovative Design in Accomplishing the Goals of E.O. 13112.  B. Implementation of the 1994 FHWA Executive Memorandum on Beneficial Landscaping.  C. FHWA National Environmental Policy Act (NEPA) Analyses.  D. FHWA Support of Research that is Relevant to State DOT Vegetation Management Programs.  E. Training for State DOT Vegetation Managers.  F. Participation of State DOTs in State Invasive Species Councils.  G. Participation of the FHWA in Federal Interagency Committees. X. Bonnie Harper-Lore, National Vegetation Management Coordinator, Federal Highway Administration – Career Profile. XI. Literature Citations and Online Resources.  **Unit 12. Clearwater County, Alberta, Weed Management Program.** I. Introduction to Clearwater County, Alberta. II. Clearwater County Agricultural Services Board – Mission and Goals. III. Structure of the Clearwater County Ag Services Board.  IV. Goal #1: Develop programs to enhance the well being of the agricultural community.  A. Objective #1 – Promote Weed Management.  1. Training - Weed Control Workshops.   2. Public Lands - Weed Control on Crown Land. 3. Public Lands - Weed Control on Roadsides and in Municipalities.  4. Mechanical Weed Control - Roadside and Cemetery Grass Mowing.  5. Control Demonstrations - On-Farm Weed Control Demonstrations.  6. Urban Weed Control – Technical Assistance to Municipalities in Clearwater County.  7. Weed Free Hay – The Alberta Weed Free Hay Certification Program.  8. Interagency Coordination Across the Province – The Alberta Invasive Plant Council.  9. Weed Control on Private Land – Custom Applications with GPS Equipped Tractors.  B. Objective #2 - Increase Awareness of Environmental Farm Issues.  1. Alberta Environmentally Sustainable Agriculture Agreement/Rocky Riparian Group.  2. Pesticide Container Recycling.  3. Tree Planting – The Alberta Farm Stead Tree Program.  4. Environmental Stewardship – The Alberta Environmental Farm Plans.  5. Efforts to Inspire Environmental Stewardship in the Community.  C. Objective #3: Provide Access to Specialized Farm Equipment and Commodities.  **1**. Community Pasture Sprayers and Rental Equipment.  2. Sale of Herbicides.  3. Sale of Herbicide Application Equipment Parts.  4. Explosives for Beaver Dam Blasting.  D. Objective #4: Promote Effective Wildlife Management Practices.   1. Beaver Control Workshops. E. Objective #5: Evaluate and Promote Innovative Agricultural Practices.  1. Systems for Off-Site Livestock Watering.  2. Direct Seeding to Minimize Soil Disturbance.  3. Establishment of Woodlots.  4. Establishment of Riparian Areas. F. Objective #6: Enhance the rural/urban relationship.  1. Farm Family Award Program. G. Objective #7: Promote a neater appearance of the County – Rural Beautification. VI. Goal #2: Develop Agricultural Policies to meet the needs of the County. VII. Goal #3: Administration of the Alberta ASB Act and other Provincial Legislation.  A. Clearwater County ASB Weed Extension Activities.  B. Agricultural Pest Control in Clearwater County  1. Countywide Survey for Clubroot Disease of Canola.  2. Wild Boar Control in Clearwater County.  3. Coyote Control in Clearwater County.  4. Richard Ground Squirrel Control in Clearwater County.  5. Northern Pocket Gopher Control in Clearwater County.  6. Efforts to Raise Awareness of the Threat of West Nile Virus. VIII. Goal #4: Promoting Cooperation among Local Agricultural Agencies and Individuals.  A. Water Management - Migration of the Clearwater River.  B. Educational Outreach - Agricultural Publications, Videos, and Resource Material.   C. Alliances, Coalitions, and Interagency Councils.  D. Right-of-way Maintenance - Removal of Roadside Brush.  E. Testing of New Crop Varieties - Crop Variety Trials.  F. Position Papers – Clearwater County ASB Positions on Various Issues.  G. Clearwater County Agricultural Banquet.  H. Membership in the Alberta Association of Agricultural Fieldmen.  I. Clearwater County Agricultural Theme Park.  J. Livestock Age Verification - Alberta Livestock and Meat Strategy. IX. Kim Nielsen, Manager, Clearwater County Agricultural Services Department, Rocky Mountain House, Alberta, Canada. Career Profile. X. Link to 2009 Position Papers of the Clearwater County ASB.  **Unit 13. Cooperative Weed Management Areas – The South Fork Weed Management Area in Park County, Wyoming.** I. Historical Note about the South Fork Weed Management Area. II. Introduction. III. Development of the Weed Management Area Concept.  A. Recognizing the Potential Crisis.  B. The Greater Yellowstone Weed Coordinating Committee.  C. The Cooperative Weed Management Concept is given Structure.  D. Guidelines for Coordinated Management of Noxious Weeds: Development of Weed  Management Areas. IV. South Fork Weed Management Area, Park County, Wyoming.  A. Topography and Demographics of the Shoshone River Valley.  B. Selection of the South Fork WMA Steering Committee.  C. Formation of the South Fork WMA Coordinating Committee.  D. Activities of the South Fork WMA Coordinating Committee.  1. Employment of a Coordinator for the South Fork WMA.  2. Obtaining Financial Support.  3. Short Term Support.  4. Long Term Support.  E. Implementing the Integrated Weed Management Plan.  1. Awareness and Education.  2. Chemical Control.  3. Biological Control.  4. Physical and Mechanical Control  5. Restoration.  6. Prevention and Early Detection.  F. South Fork Weed Management Area Partners.  G. Evaluating the Success of the South Fork Weed Management Area. V. South Fork Weed Management Area – 1993 Goals and Management Plan.  A. South Fork Weed Management Area Boundaries.  B. Land Ownership and Use.  C. South Fork Weed Management Area Goals.  D. Background Information.  E. Planned activities.  1. Inventory and Mapping.  2. Education.  3. Control Research. VI. Recent Updates on Control Dalmatian of Toadflax in Park County, Wyoming.  A. Cooperative Weed Management Area Saves the Shoshone River Watershed from Dalmatian Toadflax. Fact Sheet.  B. Cooperation Key to Success – Dalmatian Toadflax in Park County, WY -Article.  VII. Bob Parsons, Weed Supervisor, Park County, Wyoming – Career Profile. VIII. Literature Cited.  **Unit 14. Invasive Plant Task Forces – The Beach Vitex Task Force.** I. Introduction.  A. Recognition of Beach Vitex as a Potential Problem on S.C. Beaches.  B. Why is Beach Vitex a Problem on Coastal Dunes?  C. Citizen Scientists Raise Concerns about Beach Vitex.  D. Establishment of the South Carolina Beach Vitex Task Force.  E. Establishment of the Carolinas Beach Vitex Task Force.  1. Principle Partners in the Carolinas Beach Vitex Task Force.  2. U.S. Beach Vitex Task Force Website.  3. At Loggerheads with Beach Vitex – SCBVTF – 2005 Poster.  4. Beach Vitex Fact Sheet – Mississippi State University - 2007.  5. Beach Vitex - Wildland Weeds Magazine. Spring, 2007.  6. BV Task Force – Significant Accomplishments – 2003-2009. II. Overview of Beach Vitex Eradication in South Carolina.  A. Phase 1 - Task Force Establishment and Organization.  B. Phase 2 - Large Scale Eradication and Restoration Demonstration.   C. Phase 3 – Final Eradication of Beach Vitex from the S.C. Coast.  D. Efforts to List Beach Vitex as a State Noxious Weed in S.C.  1. Letter on Listing of BV as a State Noxious Weed in S.C. III. Efforts to Eradicate Beach Vitex in North Carolina.  A. Regulation of Beach Vitex as a State Noxious Weed in North Carolina.  1. Beach Vitex Pocket ID Card. North Carolina Sea Grant -2006.   2. BV Poster – U.S. Fish and Wildlife Service, Raleigh, N.C. - 2008.  3. BV Biology and Control. Sarah True – MS Thesis, NCSU - 02-09. IV. Eradication of Beach Vitex in Virginia.  A. 2009 Treatments of Beach Vitex in the City of Norfolk, VA.  B. Beach Vitex in Sandbridge (Virginia Beach), Virginia.  C. Temporary Quarantine against BV in VA – October, 2009.  1. VA-DACS - Letter about BV to VA Plant Nurseries – June, 2009.  2. USAToday -Article on Beach Vitex in Virginia; October 15, 2009.  3. VA-DACS –Temporary Quarantine on BV in VA – 10-26-09.  4. VA-DACS Press Release on BV Quarantine – 10-26-09.  5. Letter from the Beach Vitex Task Force to VA-DACS.  V. Current South Carolina Coordinator, Beach Vitex Task Force – Career Profile. VI. Conclusions. | | | | | |
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| **COURSE REQUIREMENTS**  To be successful in this course, students must complete the following requirements:  **\*\*Weekly Unit Written Assignments** – ISM 211 weekly written assignments are downloaded from the course server. Completed assignments are uploaded to the course server for evaluation by the instructor. The due date for each assignment is listed in the course assignment schedule on the course home page. For each day an assignment is late, five (5) points will be deducted from the final score. Assignments will not be accepted for credit more than five days after the official due date, unless there is a demonstrated hardship. *Written assignments count as 40% of the final grade.*  **\*\*Bi-weekly Discussion Forums** – A popular feature of the NAISMA IVS online courses is the bi-weekly Class Discussion Forums of assigned topics. In this part of the course, each student will exchange comments and post ideas to the Discussion Forum section of the course home page. The purpose is to encourage interaction between students throughout the semester. *Discussion responses count as 10% of the student's final grade.*  **\*\*Research Project** - Each student who is registered in ISM 211 will develop 10 *original* invasive species fact sheets as described in the Research Project Section of the Course Home Page. Final drafts of the fact sheets are due on designated dates throughout the semester (refer to Course Assignment Schedule).  *The research project counts as 25% of the final grade.*  **\*\*Final Exam.** The final exam will be sent to students by e-mail during the last week of the semester. The exam answer sheet is due back to the instructor on the date designated. *The Final Exam counts as 25% of the final grade*. | | | | | |
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| **GRADING CRITERIA**  **1.   Course Effectiveness.** Progress will be measured by unit assignments, participation in posted class discussion topics, written lab reports, a field survey project report, and a final exam.  **2.   Methods of Evaluation:**  Weekly Unit Assignments: 40% of Total Grade  Bi-weekly Unit Discussions: 10% of Total Grade IVS Fact Sheets: 25% of Total Grade  Final Exam: 25% of Total Grade  **3. Grading Scale:** PASS: 70-100 FAIL: 0-69 | | | | | |
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| **STUDENT ACCESS TO INSTRUCTOR**  **Course Instructor:** Randy G. Westbrooks, Ph.D., Invasive Species Prevention Specialist, Chadbourn, N.C. Phone: 910-918-6374; E-Mail: [RandyWestbrooks@gmail.com](mailto:RandyWestbrooks@gmail.com). | | | | | |
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| **ATTENDANCE REQUIREMENTS**  ISM 211 is an internet based, independent study course. | | | | | |
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| **ADDITIONAL INFORMATION**  a.   The last day to drop ISM 211 without a grade for the current semester is the 10% Point of the Course (refer to the instructor).  b.   The last day to withdraw from ISM 211 for the current semester is the 80% Point of the Course (refer to the instructor)**. Up to the final drop date, a student who withdraws from the course will receive a W on their transcript.** After this point, a student cannot withdraw and will be given a final grade as earned.  c.   **Access to Computer and E-Mail.** Since this is an internet based course, students must own or have access to a computer and e-mail in order to retrieve assignments from the course home page and to submit completed work to the instructor.  d. **Necessary Computer Skills.** To be successful in this internet based course, students **must** be proficient in the use of **word processors** (submit all assignments in MS-Word), in the use of **e-mail** (including file attachments for submitting written assignments), and in using the **internet** (for retrieving assignments from the ISM 211 Home Page and for searching the WWW). | | | | | |
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