**NREM M.S. MEM Concentration Areas Course Listing**

The following courses are approved for the four M.S. MEM Concentration Areas. Petitions for course additions or substitutions to a given concentration area will be considered on an ongoing basis (to be submitted to the NREM Curriculum Committee via a student’s faculty advisor). When planning your courses, remember: *(i)* you need 18 total credits, with 9 credits from your specialization concentration area and 3 credits from each of the other three concentration areas; *(ii)* 12 of the 18 total credits must be NREM classes; *(iii)* no more than 12 credits are allowed from 400-level classes; and *(iv)* you have to complete required prerequisites (identified in parentheses after each course) prior to enrolling in a course. Select courses are approved for two areas, they may only be counted once towards the total of 18 credits (i.e., no double dipping).

*Applied Terrestrial Ecology (pre-requisites) ** = Currently not being offered*

- NREM 450 Wildlife Ecology & Management  (BIOL 172 or consent)
- NREM 480 Applied Forest Ecology  (NREM 301 and 380 or consent)
- NREM 610 Advanced Methods in Wildlife Management & Conservation  (Graduate standing or consent)
- NREM 680 Ecosystem Ecology  (Advanced undergraduate coursework in ecology and soil science and graduate standing; or consent)
- NREM 682 Restoration Ecology  (Advanced undergraduate ecology course and graduate standing, or consent)
- NREM/BOT/ZOOL 690 Conservation Biology  (BIOL 375 and either ZOOL 480 or BOT 462; and either ZOOL 410, 439, 620, 623, BOT 453, 454, 456, or 492; or consent)
- NREM 691 Advanced Topics in NREM: Forest Nutrition and Biogeochemistry  (Graduate standing or consent)
- NREM 691 Advanced Topics in NREM: Quantitative Ecosystem Carbon

- BOT 444 Ethnoecology and Conservation  (BOT 440, and 350 or 453 or GEOG 330; or consent)
- BOT 454 Plant Community Ecology; Prereqs: BOT 202 or Consent
- BOT 456 Plant-Animal Interactions  (BOT 201/201L or BIOL 265/265L)
- TPSS 481 Weed Science  (TPSS 200 and CHEM 152, or consent)
- BOT 651 Invasion Biology  (One of BOT 453, 456, MICR 485 OR ZOOL 439; and BOT 462 or BIOL 375; or consent)
- BOT 661 Hawaiian Vascular Plants  (BOT 461 or consent)
- TPSS 604 Advanced Soil Microbiology  (TPSS 304 and MICR 351, or consent)
- ZOO 439 Animal Ecology  (BIOL 265 and MATH 205 or MATH 215 or MATH 241; or consent)
- **NREM 685 Landscape Ecology (Graduate standing or consent)**
**Environmental Policy & Economics (pre-requisites) ** = Currently not being offered

- **NREM 420 Community and Natural Resource Management** (2 social science courses or consent)
- **NREM/ECON/TPSS 429 Spreadsheet Modeling for Business and Economic Analysis** (NREM 220 or ECON 130, and NREM 310 or ECON 321; or consent)
- **NREM 491/HWST 458/BOT 458 Natural Resource Issues and Ethics in Hawai'i** (HWST 457/ BOT 457, HWST 107 and Junior standing; OR instructor consent)
- **NREM 611 Resource and Environmental Policy** (ECON 300 or ECON 301, or consent)
- **NREM 620 Care and Collaborative Management of Natural Resources** (Graduate standing or consent)
- **NREM 637 Resource Economics** (ECON 608 and ECON 629)
- **NREM 658 Advanced Environmental Benefit-Cost Analysis** (None)
- **NREM 671 International Agricultural Systems** (Consent)
- **NREM 691 Advanced Topics in NREM: Environmental Benefit-Cost Analysis** (Summer; Graduate standing or consent)
- **NREM 691 Valuing Nature** (Graduate standing or consent) (not offered until Spring 2018)
- **GEOG 413 Resource Management** (Junior standing or higher)
- **GEOG 621 Coastal Management and Planning** (None)
- **GEOG/PLAN 622 Environmental Impact Assessment** (Graduate standing)
- **GEOG/PLAN 637 Environment and Development** (None)
- **PLAN 620 Environmental Policies and Programs** (PLAN 600 or concurrent or consent)
- **PLAN 625 Climate, Energy & Food** (PLAN 620 or concurrent or consent)
- **PLAN 628 Urban Environmental Problems** (PLAN 600 or consent)
- **PLAN 640 Land Use Policies and Programs** (PLAN 600 and 601 or consent)
- **PLAN 671 Disaster Management: Understanding the Nature of Hazards** (PLAN 670 or consent)

- **NREM 627 Applied Microeconomic Analysis** (AREC 626 and ECON 627, or consent)
Geospatial Analysis & Modeling (pre-requisites) ** = Currently not being offered

- NREM 477 GIS for Resource Managers (Either NREM 310 or MATH 140 or MATH 373, and NREM 301; or consent)
- NREM 664 Small Watershed Modeling (CEE 424 or concurrent or GG 425 or concurrent or BS degree from NREM, or consent)
- NREM 677 Remote Sensing of the Environment (1 Physics course (e.g. PHYS 151), 1 calculus course (e.g. NREM 203), and 1 statistics course (e.g. NREM 310), or consent)
- NREM 640 Land System Science (Graduate standing or consent)
- GEOG 470 Remote Sensing (GEOG 370 or consent)
- GEOG 472 Field Mapping (Junior standing or higher, or consent)
- GEOG 489 Applied GIS (NREM 477 or an introductory course is recommended)
- PLAN 673 Info Systems for Disaster Management and Humanitarian Assistance (PLAN 670 or consent)
- PLAN 473 GIS for Community Planning (Junior standing or higher)
- TPSS/GEOG 680 Geospatial Analysis of Natural Resource Data (GEOG 388 or ZOOL 631; or consent)
Land & Water Resource Management (pre-requisites) ** = Currently not being offered

- NREM460/TPSS 450 Sustainable Nutrient Management in Agroecosystems (NREM 304 and CHEM 161)
- NREM 612 Predicting & Controlling Degradation in Human-Dominated Ecosystems (NREM 301 and 304 (or equivalent) and 600)
- NREM 631 Sustainable Agriculture Seminar (none)
- NREM 640 Land System Science (Graduate standing or consent)
- NREM 662 Watershed Hydrology (NREM 203 or equivalent and 304 or equivalent; or consent)
- NREM 664 Small Watershed Modeling (CEE 424 or concurrent or GG 425 or concurrent or BS degree from NREM, or consent)
- NREM 691 Advanced Topics in NREM: Quantitative Ecosystem Carbon

- BOT/ZOOL 450 Natural History of Hawaiian Islands (1 semester of biological sciences)
- GEOG 405 Water and the Environment (Pre: 101 or 300 or 400 or 401 or 402 or MET 101 or MET 200 or MET 302 or MET 303 or MET 310, or consent. DP)
- GEOG 423 Human Dimensions of the Coastal Ocean (Junior standing or consent)
- GEOG 618 Human Environment Systems (Graduate standing or consent)
- HWST 457/BOT 457 ʻĀina Mauliola: Hawaiian Ecosystems (HWST 107, BOT 105, and Junior standing; or consent)
- HWST 459/BOT 459 Strategies in Hawaiian Resource Use (HWST 457 or BOT 457 (or concurrent), or consent)
- HWST 650 Hawaiian Geography and Resource Management (HWST 107, 270, 341 (or concurrent), 342 (or concurrent), and one of the following: 343 (or concurrent) or 390 (or concurrent) or 490 (or concurrent))
- LWEV 588 Legal Aspects of Water Resources and Control (None)
- OCN 457 Coastal Ecosystem Ecology (OCN 201, 201 Lab, and OCN 310)
- ZOOL 410 Corals and Coral Reefs (BIOL 265)

- **NREM 463 Irrigation and Water Management (NREM 203 (or equivalent) and NREM 304 (or equivalent), or consent)
- **NREM 660 Hydrologic Processes in Soils (None)
- **NREM 461 Soil and Water Conservation (NREM 301 or 304)
- **NREM 665 Coastal and Wetland Ecology and Management (None)
- **NREM 467 Natural Resource Conservation Planning (None)