

BIOL 3762 - Field Botany

Fall 2026 Syllabus, Section 01, CRN 43357,

Credit hours: 4

Instructor

Santosh Rana Magar

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Public Instructor Information

Instructor Title: *Assistant Professor*

Instructor Professional Qualifications: **PhD (Botany, Kunming Institute of Botany, 2020); Master's in Science (Botany, Tribhuvan University, 2015);**

Bachelor's in Science (Botany, Tribhuvan University, 2011)

Instructor Office Location: **#3035B Ward Beecher**

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Course Description

3762. Field Botany. A field-based plant identification using morphological traits, herbarium specimen preparation, and research-based ecological data collection, prioritizing the significance of local plants. Students learn diagnostic plant traits, major families, specimen preparation, and ecological data collection using keys, field guides, and modern biodiversity tools. Two hours lecture, four hours lab. Prereq.: BIOL 2602 (grade C or better in). 4 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Newcomb's Wildflower Guide. Little Brown & Company	Newcomb, L. (1977)	ISBN-10 : 0316604429 / ISBN-13 : 978-0316604420
Optional	The Herbarium Handbook: Sharing Best Practice from Across the Globe. Kew Publishing, Royal Botanic Gardens, Kew.	Davies, N. M., Drinkell, C., & Utteridge, T. M. (Eds.). (2023)	
Optional	Practical plant identification: including a key to native and cultivated flowering plants in north temperate regions. Cambridge University Press.	Cullen, J. (2006)	
Optional	Plant Identification Terminology: An Illustrated Glossary (2nd edn.). University Press of Colorado, USA.	Harris, J.G., & Harris, M.W. (2001)	

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Tue	8/25	Course syllabus; introductory Ohio flora resources	Ch. 1 – Introduction to Field Botany & Ohio Flora: Field botany, floristic knowledge, native/non-native/invasive plants, Ohio flora, field notebooks, botanical observation, and semester project introduction.	Quiz 1 – Introduction to Field Botany

Tue	9/1	Plant classification and nomenclature materials	Ch. 2 – Plant Classification & Evolution: Major plant groups, evolutionary transitions, taxonomic hierarchy, scientific nomenclature, and importance of taxonomy in invasive-plant documentation.	Quiz 2 – Classification, nomenclature, and major plant groups
Tue	9/8	Vegetative morphology terminology/ handout	Ch. 3 – Vegetative Morphology: Roots, stems, leaves, arrangement, attachment, margins, venation, surface characteristics, and diagnostic vegetative terminology.	Quiz 3 – Vegetative morphology
Tue	9/15	Reproductive morphology and fruit/seed terminology	Ch. 4 – Reproductive Morphology: Flowers, inflorescences, fruits, seeds, monocots vs. eudicots, and dispersal mechanisms relevant to plant invasion.	Photo-document 5 fruit/seed types with dispersal notes
Tue	9/22	Major plant groups and Ohio flora resources	Ch. 5 – Major Plant Groups & Local Flora: Bryophytes, ferns, gymnosperms, angiosperms, diagnostic characteristics, ecological roles, and recognition of major Ohio plant groups.	Quiz 4 – Major plant groups and diagnostic traits
Tue	9/29	Dichotomous key and regional flora exercises	Ch. 6 – Dichotomous Keys, Field Guides & Identification Tools: Use of keys, regional floras, field guides, digital biodiversity resources, and identification of unknown specimens.	Key 3 unknown specimens and document identification pathway; Quiz 5
Tue	10/6	Selected Ohio plant-family identification materials	Ch. 7 – Plant Families & Habitat Adaptations: Major Ohio plant families and adaptations associated with forests, wetlands, riparian areas, grasslands, roadsides, and disturbed habitats.	Quiz 6 – Plant families and habitat recognition
Tue	10/13	Ohio invasive plant resources	Ch. 8 – Native, Non-native & Invasive Plants of Ohio: Introduction pathways, establishment, spread, ecological impacts, invasive-plant identification, occurrence mapping, and biodiversity databases. Launch Ohio Invasive Plant Documentation Project.	Project Phase I: Target invasive species selection and preliminary identification profile
Tue	10/20	Review materials – Weeks 1–8	Midterm Exam: Classification, morphology, terminology, plant groups, families, identification, dichotomous keys, and introductory invasion concepts.	Midterm Exam – 50 points
Tue	10/27	Herbarium collection guidelines	Ch. 9 – Herbarium Science I: Botanical Collection: Herbarium purpose, ethical collecting, field numbers, locality and habitat data, associated species, GPS/ location information, and field photography.	Quiz 7 – Herbarium science and botanical collection
Tue	11/3	Herbarium specimen preparation and labeling guidelines	Ch. 9 – Herbarium Science II: Specimen Preparation & Documentation: Pressing, drying, mounting, labeling, identification verification, databasing, and preparation of voucher specimens.	Herbarium Assignment – Specimen(s), professional label, and field record
Tue	11/10	Botanical survey and ecological field-data protocols	Ch. 10 – Ecological Field Data & Invasive Plant Assessment: Botanical survey design, species lists, presence/absence, frequency, abundance, habitat data, and basic diversity concepts.	Project Phase III: Standardized occurrence and ecological data submission

Tue	11/17	Class dataset and data-analysis materials	Ch. 11 – Analyzing & Interpreting Botanical Data: Class invasive-plant dataset, species richness, frequency, abundance, habitat associations, introductory diversity analysis, visualization, and interpretation.	Data Exercise – Figures/tables and short ecological interpretation
Tue	11/24	Selected invasive-plant management resources	Ch. 12 – Integration: Ohio Invasive Flora: Integration of morphology, taxonomy, herbarium records, distribution, habitat, and ecological data; management and conservation implications.	Final Project Report – Ohio Invasive Plant Documentation / Species Case Study
Tue	12/1	Final exam study guide/review materials	Ch. 13 – Course Review & Final Examination: Synthesis and practical application of morphology, taxonomy, plant families, identification, herbarium science, and ecological interpretation.	Final Exam – 150 points; Study Guide
Tue	12/8	No assigned reading	Student Research Presentations & Course Synthesis: Presentations from invasive-plant documentation projects; synthesis of class findings and applications to invasive-species research and management.	Final Presentation – 100 points

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