

BIOL 475-[Removed] Capstone Seminar: Evolution of Primitive Flowers

[Removed]

[Removed]

Wenheng Zhang, Ph.D.

Office: [Removed], wzhang5@vcu.edu

<u>Date</u>	<u>Lec</u>	<u>Topic & Readings</u>	<u>Deadlines</u>
[Removed]	1	Introduction & overview	
[Removed]	2	The first flower I	
[Removed]	3	Characteristic features of angiosperms (the flowering plants): a great mystery of the origin of angiosperms	
[Removed]	4	Extant angiosperm phylogeny and flower evolution	
[Removed]	5	Early fossil flowers I: <i>Yuhania</i> , a unique angiosperm from the middle Jurassic	Assignment #1 due
[Removed]	6	Early fossil flowers II: put the fossils on the phylogeny	
[Removed]	7	Patterns of structural diversification in angiosperm reproductive organs I: inflorescence structure	
[Removed]	8	Patterns of structural diversification in angiosperm reproductive organs II: floral organisation	Assignment #2: project topic due
[Removed]	9	Patterns of structural diversification in angiosperm reproductive organs III: other aspects of floral construction	
[Removed]	10	Molecular mechanisms underlying origin and diversification of angiosperms	

BIOL 475[Removed] Capstone Seminar: Evolution of Primitive Flowers

[Removed]	11	The ABCs of gymnosperm reproduction and the origin of the angiosperm flower	Assignment #3: project first draft due
[Removed]	12	History of pollination in angiosperms	
[Removed]	13	Project presentations (1-3)	
[Removed]	14	Project presentations (4-6)	Assignment #4: project second draft due
[Removed]		Fall break, no class.	
[Removed]	15	The first flower II	
[Removed]		The week of finals, no class	Final project due

Readings:

1. The reading materials will be available on the BlackBoard
2. Selected book chapters from Friis EM, Crane PR, Pedersen KR (2011) Early flowers and angiosperm evolution. Cambridge University Press, Cambridge, UK; New York, US

Course Description

This seminar course explores the evolution of the earliest flowers by introducing the latest research in the field. The readings and discussion highlight connections with the biology of fossil flowers, the diversity of extant angiosperms, their phylogenetic relationships, and the ecology drove the flower evolution. Our discussion also touches upon the genetic mechanism that controls the development of the flower ground plan. Notably, we will think about how the model on changing developmental program during evolution can help us to understand how the diverse flower forms. The last but not least, we would ask what the first flower looks? How can we figure out the answer as a scientist, when they are long gone?

Course Objectives

BIOL 475[Removed] Capstone Seminar: Evolution of Primitive Flowers

- Understand the flower through the connections among morphology, development, evolution, phylogenetics, and ecology.
- Demonstrate the ability to organize ideas, analyze information, provide insights in writing.
- Present a topic with logic and clarity.

Course requirements:

- Come to every class prepared—read assigned papers and participate actively! Participation will be 10%.
- BlackBoard Online forum discussion will be 20%.
- Four assignments will be 10% each. No late homework is acceptable.
- The project presentation will be 15%.
- The final project will be 15%.

Office hours:

Friday 2-3 p.m. or by appointment

VCU syllabus statement

The required syllabus statements originally included here are maintained by the Office of the Provost and are regularly updated. To prevent the dissemination of information which may no longer be accurate or complete, the full text of the required syllabus statements have been removed from this document.

Students should visit <http://go.vcu.edu/syllabus> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.