

登録コード	SE519300	開講年度	2026					
授業題目	進化生物学 II				担当教員	浅見 崇比呂		
英文授業名	Evolutionary Biology II				副担当			
単位数	2	講義期間	前期	曜日・時限	火曜・3時限		対象学年	3年
講義室	理学部第6講義室			授業形態	講義	遠隔授業科目	備考	
信大コンピテンシー非該当								
(1)授業の達成目標	授業で得られる「学位授与の方針」要素				【授業の達成目標】			
	2 6 Sカリ, 2 5 Sカリ, 2 4 Sカリ, 2 3 Sカリ							
	【2023年度以降加付対象】理学の各分野における専門知識				The goal is to gain fundamentals to understand commonality and diversity in the present populations as snapshot features at a stage of ever continuing evolutionary processes.			
	【2023年度以降加付対象】専門知識や観察・実験などによって問題を理解・解決し、その成果を的確に他者に伝える力				The goal is to gain fundamentals to understand commonality and diversity in the present populations as snapshot features at a stage of ever continuing evolutionary processes.			
(2)授業で学べる「テーマ」	芸術文化、環境共生、多文化協働、キャリア							
(3)全学横断特別教育プログラム								
(4)授業の概要	Students must have acquired credits in courses Genetics, Ecology and Ecological Genetics or in equivalent ones in preceding semesters. This course Evolutionary Genetics will cover fundamental principles to understand how populations evolve through simultaneous actions of random mutation, gene flow, mating bias, genetic drift and natural selection. The course is shaped as the 16th through 30th lectures continuing from the previous 15 classes given in Ecological Genetics.							
(5)授業のキーワード	evolutionary process, random genetic drift, effective population size, natural selection.							
(6)授業計画	1. It will be surveyed whether each student has gained dependable basics from the prerequisite courses, especially Ecological Genetics, by means of a written test. We will then discuss on class methodology to take best advantage of this advanced small-group study opportunity. The rest of this class reviews fundamental principles covered in Chapters 4 and 5 of the textbook (5th edition, 2023), pp 83-137. 2. How to study Chapter 6 along with the preceding chapters. Random genetic drift, pp. 139-142. 3. Heterozygosity and equilibrium in evolving populations by drift (pp. 143-144). 4. Effective population size, pp. 144-145. 5. Current population features illustrate their recent evolutionary history, pp. 145-147. 6. How commonly gene-copy lineages are being terminated, pp. 147-148. 7. Gene genealogy and Coalescence, pp. 147-148. 8. Balance between drift and mutation, pp. 149-150. 9. Purifying selection against evolution, pp. 149-151. 10. Estimating population size, pp. 151-153. 11. Drift versus directional selection, pp. 153-154. 12. Balance between drift and directional selection, pp. 155-156. 13. Adaptive landscape, pp. 156-157. 14. Neutral theory, pp. 157-159. 15. Signatures of natural selection (pp. 183 - 189). Online course evaluation. 16. Final examination.							
(7)成績評価の方法	Evaluation will be based on the following achievements: (1) Class attendance (2) Verbal actions, such as comments, questions, arguments or remarks, for clarification of understanding and/or communication (3) Quiz, homework, exercise and examination scores							
(8)成績評価の基準	Grade D: Students who could only be able to answer memory based questions. Grade C: Students could resolve questions similar to those in the textbook or given in classes. Grade B: Students could resolve advanced questions compared to those in the textbook or given in classes. Grade A: Students could resolve problems that involve issues covered across multiple sections of the course. Grade S: Students who could verbally explain answers to those problems by writing plain and accurate sentences.							
(9)事前事後学習の内容	Use the newest (5th) edition of the textbook. At minimum reading the pages indicated for each class in the above schedule is necessary. This task always requires self-reviewing (going back to) preceding or relevant sections in the book. Each chapter has "PROBLEMS AND DISCUSSION TOPICS" at the end. Working on those in the preceding chapters provides super help for synthetic understanding of what the point is after all.							
(10)履修上の注意	The entire lecture proceeds in English, while students are welcome to talk in Japanese anytime.							

(11)質問,相談への対応	It is assumed that students have had little experience of using English as a tool to study concepts of biology. Therefore, specific advice will be given time to time in classes to take advantage of this course opportunity. "Question time" is explicitly set up many times in each class.
【教科書】	Evolution, 5th edition, 2023, D.J. Futuyma & M. Kirkpatrick, Sinauer Associates.
【参考書】	Evolutionary Analysis, 6th ed., J.C. Herron & S. Freeman, Pearson Education, Inc. Evolution, 3rd ed., Mark Ridley, Blackwell. A Primer of Population Genetics, 3rd ed. D. Hartl, Sinauer Associates.