



# THE MODULE HANDBOOK

## FACULTY OF BIOLOGY

### Genetics

<b>Module code</b>	BIO 30401
<b>Module level</b>	Undergraduate
<b>Abbreviation, if applicable</b>	-
<b>Sub-heading, if applicable</b>	-
<b>Courses included in the module, if applicable</b>	-
<b>Semester/ term</b>	Odd
<b>Module coordinator(s)</b>	Dra. Tuty Arisuryanti, M.Sc., Ph.D.
<b>Lecture(s)</b>	1. Dr. Niken Satuti Nur Handayani, M.Sc. 2. Dr. Budi Setiadi Daryono, M.Agr.Sc. 3. Ganies Riza Aristya, S.Si., M.Sc.
<b>Language</b>	Indonesia
<b>Classification within the Curriculum</b>	Compulsory
<b>Teaching format/ class hours per week during the semester</b>	This course is organised into 4 parallel classes and planned to have 14 teaching weeks and 2 weeks of examination.
<b>Workload</b>	Estimated working hour: 3 credits of theory and 1 credit of laboratory work.
<b>Credit points</b>	3-1credits
<b>Requirements</b>	Biochemistry (BIO 30101)
<b>Learning goals/ competencies</b>	<b>1. Knowledge and understanding</b> <ol style="list-style-type: none"><li>Able to apply the principles of cell biology, mendellian genetics, probability theory, sex determination, pedigree concept and inbreeding to solve problems in genetics</li><li>Have a basic theory and instrumentation capabilities, furthermore apply the scientific method to conduct research genetics</li><li>Conduct a holistic approach to solve problems and make plans, benefits, risks, safety, trust and environmental impact.</li><li>Able to discuss actively and effectively.</li></ol>



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	<p><b>2. Ability/intellectual skill</b></p> <ol style="list-style-type: none"><li>Capable to access information and communication technologies to find solutions in the scientific understanding of genetics</li><li>Able to plan, conduct, analyze and prepare report on genetics</li><li>Able to work independently and in groups.</li><li>Face a new environment with passion and able to adapt in it.</li></ol> <p><b>3. Managerial and transferable skill</b></p> <ol style="list-style-type: none"><li>Capable to communicate and implement researches in genetics for plant, animal and human welfare, microbia</li><li>Able to anticipate and solve problems in genetics field.</li><li>Professionally responsible to scientific ethics and the impact of scientific advances in the society.</li></ol> <p><b>4. Attitude</b></p> <ol style="list-style-type: none"><li>Devoted to God Almighty</li><li>Appreciating to previous contributors (researchers) in Genetics</li><li>Appreciating the role of experimental plant, animals, human, microbe as model in genetics</li><li>Recognizing the importance of genetics as the basic science to apply in living system and science</li></ol>
<b>Content</b>	Provide knowledge and understanding (knowledge and understanding) which covers the basic principles of Mathematics, Statistics, Physics, and Chemistry are related to the structure and processes occurring in biological systems; basic concepts , principles and theories related to the structure, function, engineering, diversity, reproduction, and evolution of biological systems; biologists role in society in general and the scientific world in particular, professional and ethical responsibility of scientific as biologists on the impact of scientific advances in the field of biology to society and the world.
<b>Study/ exam achievements</b>	<ol style="list-style-type: none"><li>Midterm: 30 %</li><li>Final examination: 40 %</li><li>Presentation, attendance and activity: 10 %</li><li>Laboratory work: weekly test (20 %), laboratory activity (15 %), laboratory report (25 %), and final test (40 %)</li></ol>
<b>Forms of media</b>	White board, LCD, elearning, video and animation.
<b>Literature</b>	<ol style="list-style-type: none"><li>Arisuryanti, A., Handayani, N.S.N., Daryono, B.S. 2007. Bahan Ajar Genetika. Fakultas Biologi UGM</li></ol>



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2. Tamarin, R.H. 1999. *Principles of Genetics*. 6<sup>th</sup>.ed. WCB. McGraw-Hill, New York (USA).
  3. Klug, W.S. and R. Cummings. 2000. *Concept of Genetics*. 6<sup>th</sup>.ed. Prentice Hall Inc., New Jersey (USA)
  4. Campbell, N.A., L.G. Mitchell, and J.B. Reece. 2008. *Biology: Concept and Connection*. The Benjamin Cummings Publ.Co.Inc., California (USA).
  5. Griffith, A.J.F., J.F.Miller, D.T. Suzuki, R.C. Lewontin, and W.M. Gelbart. 1999. *An Introduction to Genetic Analysis*. W.H. Freeman & Co., New York (USA).
  6. Griffith, A.J.F., J.F.Miller, R.C. Lewontin, and W.M. Gelbart. 1999. *Modern Genetics Analysis*. W.H. Freeman & Co., New York (USA).
  7. Passarge, E. 2001. *Color Atlas of Genetics*. 2<sup>nd</sup>.ed. Thieme Stuttgart, New York (USA).
  8. Robinson, R. 2003. *Genetics*. Volume 1, 2, 3, & 4. Macmillan Reference, USA.
  9. Hartl, D.L. and E.W. Jones.1998. *Genetics: Principles and Analysis*. Jones & Bartlett Publisher, London.
  10. Suryo. 1997. *Genetika*. Gadjah Mada University Press, Yogyakarta.
  11. Suryo. 1997. *Genetika Manusia*. Gadjah Mada University Press, Yogyakarta.
  12. Elrod, S. and W. Stansfield. 2007. *Genetika* (terjemahan). Schaum's Outline. Penerbit Erlangga.
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