BIOANALYSIS

Module designation	*Bioanalysis*
Semester(s) in which the module is taught	*1*
Person responsible for the module	1. Prof. Dr. rer. Nat. M. Yuwono, MS., Apt **(Course Coordinator)** 2. Prof. Dr. apt. Djoko Agus Purwanto, M.Si 3. Dr. apt. Riesta Primaharinastiti, M.Si.
Language	*Bahasa Indonesia*
Relation to curriculum	~~*Compulsory / elective /*~~ *specialisation*
Teaching methods	*lecture, discussion, assignment*
Workload (incl. contact hours, self-study hours)	*(Estimated) Total workload:* *Contact hours (structured activities.): 90,67 hours* *Private study including independent learning activites*: *90,67 hours*
Credit points	*2 SCU / 6 ECTS*
Required and recommended prerequisites for joining the module	*NA*

Module objectives/intended learning outcomes	Students are: LO1: Able to realize excellence based on religious morals (excellence with morality), able to work together, and show a responsible attitude to work in their field of expertise independently LO2: Able to internalize the spirit of independence, struggle, and entrepreneurship LO4: Able to develop a pharmaceutical professional performance with analytical acumen in solving pharmaceutical problems and managing research in the pharmaceutical field related to national and global systems and policies, both inter and inter-disciplinary approaches. LO5: Able to access and review information through an Information and Communication Technology (ICT) system, decide on a specific subject of study, maintain the feasibility of implementing research designs, conduct research, analyze data, conclude research results comprehensively, and create strategic issues based on the study that reflect the latest updates in the field of pharmaceutical sciences, and communicate them in the media and scientific forums at the national and international level through an interdisciplinary or multidisciplinary approach in the form of a thesis or other equivalent forms. LO6: Able to make decisions in the context of solving problems related to science and technology development based on analytical or experimental studies through collaboration with colleagues, colleagues in institutions and research communities at both national and international levels and utilizing research results for the benefit of the user and other communities. LO11: Able to develop systems for evaluating the bioavailability of drugs in the body, pharmaceutical products circulation permits, and their in-vitro and in-vivo evaluations with specific delivery systems with appropriate analytical methods. LO15: Able to plan and organize concepts and procedures for quality assurance and recommendations on pharmaceutical products, which include drugs, cosmetics, foods, and beverages as products and therapeutic goods.
Content	This course describes scope of analysis of the active ingredient compounds in biological samples, sample preparation, method validation and development, requirements for analysis results with various Bioassay methods
Exams and assessment formats	*Final exam or take-home written assignments*
Study and examination requirements	*the final grade in the module is composed of 25% presentation 65% take-home assignments, 10% in-class participation and soft-skills assessment. Students must have a final grade of 70% or higher to pass*

Reading list	1. Ederveen J; 2010; Apratical Approach to Biological Assay Validation; Progress, Project Management & Engineering, Netherlands 2. Hilman RS, Ault KA, Rinder HM; 2005; Hematology in Clinical Practice : A giude to Diagnosis and Management; Edisi ke-4; Mc. Graw-Hill Professional; ISBN 0071440356 3. Anonim; 2012; Sel darah merah; Wikipedia; diakses 12Maret 2012. 4. Anonim; 2008;Compotition in urine; http://www.ivy-rose.co.uk/Topic/ Urinary _System_Compotition_Urine.htm; 1 Juli 2009. 5. Kataoka H; 2003; New trends in sample preparation for clinical and pharmaceutical analysis; Trends in Analytical Chemistry; 22; 4; 232-244. 6. Abdel-Rehim M, Dahigren M, Blomberg L; 2006; Quantification of ropivacaine andits major metabolites in human urine samples itilizing microextraction in a packed syringe automated liquid chromatography-tandem mass spectrometry (MEPS-LC-MS/MS); Journal of Separation Science; 29; 11; 1658-1661 7. Lequin, RM; 2005; “Enzyme Immunoassay (EIA)/Enzyme-Linked Immunosorbent Assay (ELISA)”; Clinical Chemistry 51 (12) : 2415-2418