

6.2. Core Courses Level 100

GTA105/2-Acoustics for Hearing and Speech

This course introduces students to the mechanism of sound generation, fundamental sound parameters, types and characteristics of sounds such as pure tones and complex sounds and fundamental acoustics instrumentation. It also covers the production of speech sounds and acoustics perception. This course will be taught via lectures, tutorials and practical sessions. Students will be assessed through test, presentation, practical reports and final examination.

List of text/reference books:

1. Johnson, K., *Acoustic and Auditory Phonetics* (3rd Ed.). Wiley-Blackwell, 2011.
2. Warren, R. M., *Auditory Perception: An Analysis and Synthesis* (3rd Ed.) Cambridge University Press, 2008.
3. Howard, D., & Angus, J., *Acoustics and Psychoacoustics* (4th Ed.) Focal Press, 2009

GTA106/2-Anatomy and Physiology of Hearing and Speech I

This course introduces students to the fundamental aspects and terminologies related to body orientation, cell structures, primary tissues and organization of the human organ systems. It also covers the applied anatomy and physiology of the respiratory, phonatory, articulation and swallowing systems which involves in the speech mechanism. This course will be taught via lectures, tutorials, practical sessions and problem based learning (PBL). The students will be assessed through test, practical exam (OSPE), practical reports, presentation and final examination.

List of text/reference books:

1. Fuller D.R., Pimentel J.T. & Peregoy B.M., *Applied Anatomy & Physiology for Speech-Language Pathology & Audiology*. Lippincott Williams & Wilkins, 2012.
2. Seikel J.A., King D.W. & Drumright D.G., *Anatomy and Physiology for Speech, Language, and Hearing* (4th Ed.). Delmar Cengage Learning, 2010.
3. Booth K.A. & Wyman T.D., *Anatomy, Physiology and Pathophysiology for Allied Health* (2nd Ed.). McGraw-Hill, 2009.
4. Gelfand, S. A., *Hearing: An Introduction to Psychological and Physiological Acoustics* (5th Ed.) Informa Healthcare, 2009.
5. Schnupp, J., Nelken, I., & King, A., *Auditory Neuroscience: Making Sense of Sound* The MIT Press, 2012.

GTA107/2-Psychoacoustics

This course introduces students to fundamental elements of psychoacoustics including auditory response area, concept of hearing threshold, concept of loudness, pitch, masking, temporal and space perception. It also covers the effects of auditory disorders on the psychoacoustics functions. This course will be taught via lectures, tutorials and practical sessions. Students will be assessed through tests, presentation, practical reports and final examination.

List of text/reference books:

1. Johnson, K., *Acoustic and Auditory Phonetics* (3rd Ed.) Wiley-Blackwell, 2011.
2. Warren, R. M., *Auditory Perception: An Analysis and Synthesis* (3rd Ed.). Cambridge University Press, 2008.
3. Howard, D., & Angus, J., *Acoustics and Psychoacoustics* (4th Ed.). Focal Press, 2009.
4. Gelfand, S. A., *Hearing: An Introduction to Psychological and Physiological Acoustics* (5th Ed.) Informa Healthcare, 2009.
5. Schnupp, J., Nelken, I., & King, A., *Auditory Neuroscience: Making Sense of Sound*. The MIT Press, 2012.

GTA108/2-Basic Audiology Techniques

This course introduces students to the fundamental audiology diagnostic procedures such as history taking, otoscopic examination, pure tone audiometry, tympanometry and speech audiometry. It also covers the introduction to the audiology diagnostic and auditory system disorders. This course will be taught via lectures, tutorials, case study and practical. Students will be assessed through test, assignment, practical report and final examination.

List of text/reference books:

1. Gelfand, S. A., *Essentials of Audiology*. United States of America: Thieme, 2009.
2. Katz, J., Medwetsky, L., Burkard, R., & Hood, L. (Eds.), *Handbook of Clinical Audiology*. United States of America: Lippincott Williams & Wilkins, 2009.
3. Kramer, S., & Guthrie, L., *Audiology Workbook*. San Diego: Plural Publishing Inc., 2008.
4. Roeser, R. J., Valente, M., & Hosford-Dunn, H., *Audiology Diagnosis*. United States of America: Thieme, 2007.
5. Hunter, L., & Shahnaz, N., *Acoustic Immittance Measures Basic and Advanced Practice*. San Diego: Plural Publishing Inc., 2012.

GTA109/2-Anatomy and Physiology for Hearing and Speech II

This course introduces students to the aspects of applied human anatomy and physiology which covers the nervous, auditory and vestibular systems. This course will be taught via lectures, tutorials, practical sessions and problem based learning (PBL). The students will be assessed through test, practical exam (OSPE), practical reports, presentation and final examination.

List of text/reference books:

1. Fuller D.R., Pimentel J.T. & Peregoy B.M., *Applied Anatomy & Physiology for Speech-Language Pathology & Audiology*. Lippincott Williams & Wilkins, 2012.
2. Seikel J.A., King D.W. & Drumright D.G., *Anatomy and Physiology for Speech, Language, and Hearing* (4th Ed.). Delmar Cengage Learning, 2010.

3. Booth K.A. & Wyman T.D., *Anatomy, Physiology, and Pathophysiology for Allied Health* (2nd Ed.). McGraw-Hill, 2009.
4. Clark, W. F., & Ohlemiller, K., *Anatomy and Physiology of Hearing for Audiologist*. Singular Publishing Group, 2004.
5. Linda M Luxon., *Textbook of Audiological Medicine: Clinical Aspects of Hearing and Balance*, Martin Dinitz, 2003.

GTB105/3-Human Biochemistry

This course introduces students to the aspects of human biochemistry. It covers knowledge and principles in protein, carbohydrate and lipid metabolism, hormones and their mechanisms, water and electrolyte balance, acid and base balance, types, functions and mechanisms of macro and micro minerals. The elements of occupational health and safety of working in a laboratory are incorporated into the course during practical sessions. This course is conducted through lectures, tutorials, discussions and practical. The students are evaluated through tests, assignments, laboratory reports and final examination.

List of text/reference books:

1. Boyer, R. *Concepts in Biochemistry* (3rd Ed.). New Jersey: John Wiley & Sons Inc., 2006.
2. Horton, H.A. *Principles of Biochemistry* (4th Ed.). Upper Saddle River, NJ: Prentice Hall, 2006.
3. Mckee, T. & McKee, J.R. *Biochemistry: The Molecular Basis of Life* (5th Ed.). Boston: McGraw-Hill, 2011.
4. Murray, R., Bender, D., Botham, K.M., Kennelly, P.J., Rodwell, V. & Weil, P.A. *Harper's Biochemistry* (29th Ed.). McGraw-Hill Medical, 2012.

GTB106/3-Laboratory Science

This course introduces students to aspect of laboratory safety, the basic laboratory techniques, management and maintenance of laboratory equipment which covers professional attitude and ethics, safety methods and disposal of dangerous chemicals, storage and maintenance of chemicals and reagents, keeping and record, use of laboratory plastics and glasses, sterilization and disinfection, principle of quality management, receiving and managing specimens. Students will also be trained in using and maintenance of laboratory equipments such as micropipette, centrifuge, pH meter, balances, spectrophotometer and other common laboratory analytical equipments. This course will also emphasis on the reduction in energy and disposable item used. This course is conducted through lectures, tutorials, practical and discussions. The students are evaluated through tests, laboratory reports and final examination.

List of text/reference books:

1. Bishop, M.L., Schoeff, L.E. & Fody, E.P. *Clinical Chemistry-Principles, Procedures & Correlations* (5th Ed.). Philadelphia: Lippincott Williams & Wilkins, 2004.

2. Burtis, C.A., Ashwood, E.R. & Bruns, D.E. *Tietz Textbook of Clinical Chemistry and Molecular Diagnostics* (4th Ed.). Elsevier Science, 2005.
3. Kaplan, L.A., Pesce, A.J. & Kazmierczak, S. *Clinical Chemistry: Theory, Analysis, Correlation* (5th Ed.). Delmar Learning, 2002.
4. Ramnik, S. *Textbook of Medical Laboratory Technology*. India: Jaypee Brothers, 2006.

GTB109/3-Cell Biology Techniques

This course introduces students to fundamental knowledge in cell biology and cell culture techniques. It covers the skills and instrumentation related to somatic cell, cancer cell and stem cell culture which can be applied in cell biology related research. The course will be conducted via lecture and practical. The students will be assessed through tests, assignments, practical reports and final examination.

List of text/reference books:

1. Aschner, Michael, Suñol, Cristina, Bal-Price & Anna. *Cell Culture Techniques*. Springer, 2011.
2. Butler, M. *Animal Cell Culture and Technology* (2nd Ed.). London and New York: BIOS Scientific Publishers, 2004.
3. Cheryl D. Helgason & Cindy L. Miller. *Basic Cell Culture Protocols (Methods in Molecular Biology)*. Humana Press, 2005.
4. Gerald, K. *Cell and Molecular Biology: Concepts and Experiments* (3rd Ed.). John Wiley & Sons, Inc, 2003.
5. John, D. & Mike, L. *Essentials of Cells Biology (Vol. 1): Cell Structure*. UK, Oxford University Press, 2003.
6. John, D. & Mike, L. *Essentials of Cells Biology (Vol. 2): Cell Structure*. UK, Oxford University Press, 2003.

GTF101/3-Basic Chemistry

This course will introduce students to various topics on basic knowledge of chemistry such as atom, molecules, ions, gases, reactions in aqueous solutions, chemical kinetics, entropy, free energy, acid base equilibrium, periodic table, nuclear chemistry, electrochemistry and chemistry in atmosphere.

List of text/reference books:

1. R. Baner, J. Birk and P. S. Mark, *A Conceptual Introduction to Chemistry* (2nd Ed.). McGraw Hill, 2010.
2. R. Chang, *General Chemistry: The Essential Concept* (4th Ed.). McGraw Hill, 2013.
3. R. Chang, *Chemistry* (8th Ed.). Pearson Education, 2012.

GTF104/3-Inorganic Chemistry

This course introduces students to stoichiometry, atomic structure, nuclear chemistry, periodic table, chemical bonding and properties of matter, including innovative invention in polymer and nano-technology. The course will be taught via lectures, tutorials and case studies. The students will be assessed through test, assignment, presentation and final examination.

List of text/reference books:

1. C. Hoasecroft and A. G. Shaspe, *Inorganic Chemistry* (4th Ed.). Prentice-Hall, 2012.
2. G. L. Miessler and D. A. Tarr, *Inorganic Chemistry* (3rd Ed.). Prentice-Hall, 2003.
3. T. L. Brown, H. E. LeMay, B. E. Bursten and J. R. Burdge, *Chemistry: The Central Science*, (9th Ed.). Pearson Education Inc., 2003.
4. R. H. Petrucci, W. S. Harwood and F. G. Herring, *General Chemistry: Principles and Modern Applications*, (10th Ed.). Prentice-Hall, Inc., New Jersey, 2010.

GTF105/2-General Chemistry Practical I

This course introduces students to general chemistry practical such as fundamental laboratory techniques, identification of substances based on physical properties, separation of component mixture, chemical formula, gravimetric analysis of a chloride salt, paper chromatography for separation of cations and dyes, acid-base titration, salt in water and pH of buffer solutions, determination of the dissociation constant of a weak acid, determination of solubility product constant for sparingly soluble salt in water, reactions in aqueous solutions and oxidation-reduction titrations. The course will be taught via briefings and practical sessions, where students are encouraged in group collaboration to solve problems. Students will be assessed through test and practical reports.

List of text/reference books:

1. J.H.Nelson and K.C. Kemp, *Laboratory Experiments–Chemistry: The Central Science* (11th Ed.). Pearson Education Inc., 2009.

GTF107/3-Organic Chemistry I

This course introduces students to study the basic concepts of electronic structure and bonding. It also covers the structures and properties of organic molecules, chemistry of alkane, alkene and alkyne, reactions in organic chemistry and stereochemistry. The course will be taught via lectures, tutorials and discussion on selected topics such as petroleum as energy source and the importance of organic chemistry education. Students will be assessed through test, assignments and final examination.

Main references supporting this course:

1. Wade L.G. *Organic Chemistry*, (8th Ed.). Pearson Prentice Hall, 2013.
2. Solomons T.W.G., Fryhle C.B, and Snyder S.A. *Organic Chemistry*, (11th Ed.). Wiley, 2013.
3. Smith J.G and Smith J.G. *Organic Chemistry*, (3rd Ed.). McGraw Hill, 2011.
4. McMurry J.E. *Organic Chemistry*, (8th Ed.). Brooks/Cole, 2011.

GTF108/2-General Chemistry Practical II

This course introduces students the general chemistry practical knowledge which is continued from GTF105 General Chemistry Practical 1. It covers chemical reactions, gravimetric determination of phosphorus in plant food, chemical reactions of copper and percent yield, chemicals that improve quality of life and use daily, colorimetric determination of an equilibrium constant in aqueous solution, oxidation-reduction titration of bleach, analysis of aspirin, chemical equilibrium: Le Chatelier Principle, titration curves of polyprotic acids, activity series, determination of orthophosphate in water and colorimetric determination of iron. The course will be taught via briefings and practical sessions, where students are encouraged to collaborate and maintain partnership in solving problems. Students will be assessed through test and practical reports.

List of text/reference books:

1. N.Kerner and R. Lamba, *Guided Inquiry Experiments for General Chemistry: Practical Problems and Applications*, Wiley., 2007.
2. W.McPherson, *A Course in General Chemistry*, Read Books., 2008.
3. J.H.Nelson and K.C. Kemp, *Laboratory Experiments – Chemistry: The Central Science*, (11th Ed.). Pearson Education Inc., 2009.
4. B.Stanton, L.Zhu and C.H.Atwood, *Experiments in General Chemistry: Featuring Measurement*, (2nd Ed.). Brooks/Cole Cengage Learning., 2009.
5. J. Dean, *Practical Skills in Chemistry*, (2nd Ed.). Pearson Education Ltd., 2011.

GTF109/2-Organic Chemistry Practical

This course exposes students to organic chemistry practicals such as application of thin layer chromatography and column chromatography for analysis of organic compounds found in water, agriculture products or from the ecosystem, qualitative analysis of organic compounds, identification of functional groups, distillation of organic samples, gas chromatographic analysis of caffeine identification of trace materials in blood, extraction of trimyristin, photo-reduction of benzophenon to benzophinacole, application of high pressure liquid chromatography (HPLC) for analysis of natural product samples, extraction and crystallation, acid-base properties, homophthalic acid, oxidative cleavage of double bond and Michael addition reaction. The course will be taught via briefings, demonstration teaching sessions and practical classes. Students will be assessed through test and practical reports.

List of text/reference books:

1. J.A. Landgrebe, *Theory and practice in Organic Laboratory with Mioscrole and Standard*, Thomson/Wadsworth 2009.
2. Randall G. Engel. George S. Kriz, Gary M. Lampman, Donald L. Pavia, *Introduction to Organic Laboratory Techniques. A Small Scale Approach*, (3rd Ed.). Books/Cole 2011.
3. Lehman, J. W. *The Student's Lab Companion: Laboratory Techniques for Organic Chemistry*, Upper Saddle River, N.J.: Prentice-Hall, 2004.
4. J.B. Cohen, *Practical Organic Chemistry*, Nabu Press, 2012.

GTF110/4-Physical Chemistry

This course introduces students to properties of gas and liquid, matter state principles, gas kinetic theory, chemical kinetic, and chemistry thermodynamic, including efficiency of heat engine and renewable energy. The course will be taught via lectures tutorials and discussion. Students will be assessed through test, assignments and final examination.

List of text/reference books:

1. P. Atkins and J. D. Paula, *Physical Chemistry*, (9th Ed.), Oxford University Press, 2009.
2. R. J. Silbey, R. A. Alberty and M. G. Bawendi, *Physical Chemistry*, (4th Ed.), John Wiley, 2004.
3. D. B. Ball, *Physical Chemistry*, 1st Ed., Brooks/ Cole, 2003.
4. J. Laider, J. H. Meiser and B. C. Sanctuary, *Physical Chemistry*, (4th Ed.), Houghton Mifflin Co., 2003.
5. T. Engel and P. Reid, *Physical Chemistry*. Prentice Hall, 2010.
6. D. Ronis, *Introductory to Physical Chemistry*. McGill University, 2011.
7. D.W. Ball, *Physical Chemistry*. Brooks/ Cole, 2011.

GTF111/4-Analytical Chemistry I

This course introduces students to basic knowledge on chemical analysis which covers concentration expression, statistic for analytical chemistry, chemical equilibrium, acid-base equilibrium, acid-base titration and titration, complexometry titration, gravimetry analysis, precipitation titration, redox equilibrium and redox titration. Occupational health and safety in an analytical laboratory will also be emphasised, including the best practices to disposed hazardous materials. The course will be taught via lectures, tutorials and discussion. Students will be assessed through test, assignments and final examination.

List of text/reference books:

1. D. A. Skoog, D. M. West, F. J. Holler and S. R. Crouch, *Fundamentals of Analytical Chemistry*, (9th Ed.). Thomson Brooks/ Cole, 2014.
2. G. D. Christian, *Analytical Chemistry*, (6th Ed.). John Wiley & Sons, 2007.
3. D. B. Harvey, *Modern Analytical Chemistry*. International Ed., Mc-Graw Hill, 2000.

GTJ101/4-Nursing Foundation 1

This course introduces students to nursing history and development; nursing practice and nursing process. It also incorporates the concept of health assessment to maintain sustainability across patient care and culture. This course is taught via student centered learning; lectures, small group discussion, e-learning, and practical sessions. Students will be assessed through assignment, presentation, quiz, log book, OSCE and final examination.

List of text/reference books:

1. Berman, A., Synder, S., Kozier, B., & Erb, G., *Fundamental of Nursing: Concepts, Process and Practice* (9th Ed.). USA: New Jersey, Pearson, 2012.
2. deWit, S. C., & O'neill, P., *Fundamental Concepts and Skills for Nursing* (4th Ed.). St. Louis: Elsevier Saunders, 2014.
3. Estes, M. E., *Health Assessment & Physical Examination*, (4th Ed.). New York : Delmar, 2010.
4. White, L., Duncan, G., & Baurmle, G., *Foundations of Basic Nursing* (3rd Ed.), USA: Delmar, 2011.

GTJ109/4-Nursing Foundation II

This course introduces students to the Nursing Foundation II. It covers the concept related to activities of daily living with emphasis on patient's quality of life, safety, and security. This course is taught via student centered learning, lectures, small group discussion, e-learning, and practical sessions. Students will be assessed through assignment, presentation, log book, OSCE and final examination.

List of text/reference books:

1. Berman, A., Synder, S., Kozier, B., & Erb, G., *Fundamental of Nursing: Concepts, Process and Practice*, (9th Ed.). New Jersey; Pearson, 2012.
2. deWit, S. C., & O'neill, P., *Fundamental Concepts and Skills for Nursing*, (4th Ed.) St. Louis: Elsevier Saunders, 2014.
3. Potter, P. A., & Perry, A. G. P., *Fundamentals of Nursing*, (7th Ed.). Singapore: Elseiver Mosby, 2011.
4. Smith, S. F., Duell, D. J., & Martin, B. C., *Clinical Nursing Skills: Basic to Advanced Skills*, (8th Ed.). New Jersey: Pearson Edu., 2012.
5. White, L., Duncan, G., & Baurmle, G., *Foundations of Basic Nursing* (3rd Ed.). USA: Delmar, 2011.

GTK101/3-Introduction to Environmental and Occupational Health

This course introduces students to the area of environmental health, occupational health, environmental safety, and occupational safety. This course will discuss the importance of responsibility and civil liberties of an individual towards the environment. Current issues on environmental disaster will be discussed towards its implications on water quality, community health and biodiversity. Students will be introduced to the disaster risk

management for maintaining the sustainability of the environment, health and biodiversity. The implication and significance of nurturing environmental and occupational health will be also highlighted. This course will be taught via lectures and seminars. Students will be assessed through test, presentation and final examination.

List of text/reference books:

1. Harper C. L., *Environment And Society; Human Perspectives On Environmental Issues*, Pearson Prentice Hall, Upper Saddle River, 2004.
2. Megan L., *Environment, Health And Sustainable*. Open London: University Press, 2006.
3. Yassri A., Kjellstrom T., Theo de Kok & Guidotti T., *Basic Environmental Health*. New York: Oxford University Press, 2001.
4. Benarde, Melvin A. *Our Precarious Habitat – It's in Your Hands*. US : John Wiley & Sons, Inc., 2007.
5. Waldron, H. A. & Edling, C. *Occupational Health Practice*, Hodder Education Publisher, 2004.
6. Koren, H. 2005. *Illustrated Dictionary and Resource Directory of Environmental & Occupational Health*, (2nd Ed.). London: CRC Press.

GTK104/3-Environmental Health

This course introduces the ecological components and its relationship with the environment and public health. Students will be clarified on the environmental aspects including water quality management; food preparation and storage in terms of hygiene and safety and prevention methods of food poisoning; types of pests and vector-borne disease control methods; and study of population exposure to environmental agents as well as occupational related disease or injury. The key components that will be learned which include water, health, agriculture and biodiversity are the critical issues that should be controlled and managed efficiently as to prevent crisis of depleted natural resources, poverty and environmental disaster. It is also a vital element to support sustainable development. Students are also exposed to techniques of water sampling, food inspection and sampling of mosquitoes. The course will be taught via lectures, field visits and practical sessions. Students will be assessed through quiz, test, field study report, presentation and final examination.

List of text/reference books:

1. Arduser L. & Brown D. R., *HACCP And Sanitation In Restaurants And Food Service Operations*. Atlantic Publishing, 2005.
2. Cunningham W. P. & Cunningham M. A., *Environmental Science: A Global Concern* (11th Ed.). McGraw-Hill, New York, 2010.
3. Frumkin H., ed. *Environmental Health – From Local To Global* (2nd Ed.). John-Wiley & Sons, 2010.
4. Lee C. Y., *Urban Pest Control: A Malaysian Perspective* (2nd Ed.). Penerbit USM, Malaysia, 2003.
5. Meggitt C., *Food Hygiene And Safety*. Oxford: Heinemann Education Publishers, 2003.

GTN102/4-Food Science

This course will introduce students to foods and the different kinds of fundamental changes in foods as a result of food processing. It also covers the practical session pertaining to basic food science as well as new emerging methods in food processing. This course will be taught via lecture, practical and discussion sessions. Students will be assessed through continuous assessment, practical report and final examination.

List of text/reference books:

1. Amy Brown. *Understanding Food: Principles & Preparation* (4th Ed.). Thomson Wardsworth Pub., 2011.
2. Kay Mehas and Sharon Rodgers. *Food Science: Biochemistry of Food and Nutrition* (5th Ed.). McGraw-Hill Companies, 2005.
3. Norman N. Potter and Joseph H. Hotchkiss. *Food Sciences* (5th Ed.). Aspen Publishers, Inc., 2012.

GTP100/3- Basic Linguistics

This course introduces students to basic linguistics. It covers fundamental knowledge in linguistics such as phonetics, phonology, morphology, syntax, semantic, and pragmatics and their integration. Teaching of first language acquisition and sociolinguistic perspectives are also introduced. This course will be taught via lecture and tutorial. Students will be assessed through assignment, test and final examination.

List of text/reference books:

1. Akmajian, A., Demers, R.A., Farmer, A.K., & Harnish, R.M., *Linguistics: An Introduction to Language and Communication* (6th Ed.). Cambridge: The MIT Press, 2010.
2. Fasold, R. & Connor-Linton, J. (Eds), *An Introduction to Language & Linguistics*. Cambridge: Cambridge University Press, 2006.
3. Cruse, A., *Meaning in Language: An Introduction to Semantic and Pragmatics*. Oxford University Press, 2004.
4. Nik Safiah Karim, Farid M. Onn, & Hashim Musa., *Tatabahasa Dewan*. Kuala Lumpur: DBP, 2003.
5. Black, M., & Chiat, S., *Linguistics for Clinician. A Practical Introduction*. London: Hodder Arnold, 2003.

GTP104/3- Developmental Psychology for Speech and Hearing

This is a theoretical course that gives an initial exposure to the field of psychology. It focuses on the developmental psychology of the human from prenatal to late adulthood. The topics covered include theories in developmental psychology and human development in relation to biological, cognitive, personality and social aspects according to the level of development. This course will be taught via lecture and tutorial. Students will be assessed through assignment, test and final examination.

List of text/reference books:

1. Slater, A., & Bremner, J.G. (Eds.), *An Introduction to Developmental Psychology*. New Jersey: Blackwell Publishing, 2003.
2. Papalia, D.E., Olds, S.W., & Feldman, R.D., *Human Development* (8th Ed.). Boston: McGraw-Hill, 2001.
3. Shaffer, D.R., Blanchard-Fields, F., & Cavanaugh, J.C., *Developmental Psychology: Childhood and Adolescence* (6th Ed.). Belmont: Wadsworth, 2001.

GTP107/3- Language Development

This course introduces students to fundamental theories related to the normal acquisition and development of language. It also discusses the influence of social, culture, perception, cognition and bilingualism on language development. This course will be taught via lecture, tutorial, and seminar. Students will be assessed through assignments, presentations, tests and final examination.

List of text/reference books:

1. Owens, R.E., *Language Development: An Introduction* (8th Ed.). New Jersey: Pearson Education, 2011.
2. Owens, R.E., *Language Disorders: A Functional Approach to Assessment and Intervention* (4th Ed.). Boston: Allyn & Bacon, 2003.
3. Bennet-Kastor, T., *Analysing Children's Language*. Oxford: Basil Blackwell, 1990.

GTP108/2- Clinical Bases for Audiology and Speech Pathology

This is a clinical orientation course which provides fundamental clinical training in preparation to the common procedures and patient/case managements in audiology and speech therapy. It covers on scope of practice of audiologists and speech-language pathologist, overview on the best practice in audiology and speech pathology and clinical observation skills. This course will be taught via lecture, tutorial, clinical observation session and small group discussion. Students will be assessed through quiz, presentation, observation report and final examination.

List of text/reference books:

1. Flasher, L.V., & Fogel, P.T., *Counseling Skills for Speech-Language Pathologist and Audiologist*. Albany: Thompson Delmar Learning, 2004.
2. Gillam, R.B., Marquardt, T.P., & Martin, F.N., *Communication Sciences and Disorders: From Science to Clinical Practice*. San Diego: Singular Publishing Group, 2010.
3. Hedge, M.N., & Davis, D., *Clinical Method and Practicum in Speech-Language Pathology*. New York: Thompson Delmar Learning, 2005.
4. McCrea, E.S. & Brasseur, J.A., *The Supervisory Process in Speech-Language Pathology and Audiology*. New York: Allyn and Bacon, 2003

GTP109/3- Applied Linguistics for Speech Pathology

This course introduces students to the fundamental knowledge of the science of linguistics. It focuses on the systematic study of language structure, the first and second language acquisition, colloquial language, changes and development of languages from the social, cultural, rhetoric and resistance perspectives. This course will be taught via lectures and discussion sessions. Students will be assessed through assignments reports, discussions and final examination.

List of text/reference books:

1. Schmidt, N., *Applied Linguistics* (2nd Ed.). Oxon: Hodder Education Pub., 2010.
2. Ortega, L., *Understanding Second Language Acquisition*. New York: Routledge, 2009.
3. Davies, A., & Elder, C., *The Handbook of Applied Linguistics*. New Jersey: Blackwell Publishing Ltd., 2006.
4. Ellis, R., & Widdowson, H.G., *Second Language Acquisition (Oxford Introduction to Language Study Series)*. Oxford: Oxford University Press, 1997.

GTS101/2-Introduction to Exercise and Sports Science

This fundamental course introduces students to the general knowledge in exercise and sports science field. It provides an interdisciplinary overview (e.g. physiology, psychology, nutrition, biomechanics, etc.) of the components in the field of exercise and sports science. It also introduces students to the application of exercise and sport science in facilitating athletes and improving fitness and health of individual as well as their quality of life. This course will be taught via lectures and practical. Students will be assessed through assignment, test and final examination.

List of text/reference books:

1. Pekka Oja and Jan Borms. (Eds.). *Health Enhancing Physical Activity: The Multidisciplinary Series of Physical Education and Sports Science*. UK: Meyer & Meyer Sports Ltd, 2004.
2. Jan Borms. *Directory of Sports Science*. (5th Ed.). Germany: H & P Druck, 2008.
3. Scott Wikgren, Cheri Scott and Anna Rinalsi. (Eds.). *Health and Wellness for life*. USA: Human Kinetics, 2010.
4. Leslie Bonci. *Sports Nutrition for Coaches*. USA: Human Kinetics, 2009.
5. Timothy R. Ackland, Bruce C. Elliott and John Bloomfield (Eds.) *Applied Anatomy and Biomechanics in Sport* (2nd Ed.). USA: Human Kinetics, 2009.
6. Brian J Sharkey and Steven E. Gaskill. *Sport Physiology for Coaches*. USA: Human Kinetics, 2006.

GTS102/3-Sociology and Philosophy of Sports

This course introduces students to the basic sociological and philosophical concepts related to sport. It also discusses the sociological and philosophical implications of ancient and modern developments in sports competition and sportmanship. This course also covers the human interactions, support and social purpose of exercise and sports in different communities worldwide. This course will be taught through lectures and discussions. Students will be assessed through test, assignments and final examination.

List of text/reference books:

1. Barry D McPherson, James E Curtis, & John W Loy. The social significance of sport: An introduction to the sociology of sport , Champaign, IL: Human Kinetics, 1989.
2. Coakley, J. Sports in society: Issues and controversies, McGraw-Hill, 2010.
3. Wirdati M. R. Muslim women and sports in the Malay world, Aman Silkworm Book. 2006.
4. Mangan JA, Hong Fan, 2003. Sports in Asian Society: Past and Present, (Chapter 5). CASS.McNamee M.J., *Philosophy and the Science of Exercise, Health and Sport: Critical Perspectives on Research Methods*, New York, NY: Routledge, 2005.
5. Morgan, W., Meier, K. and Schneider, A., *Ethics in Sport, Champaign* (2nd Ed.). IL: Human Kinetics, 2007.

GTX104/4-Introduction to Medical Radiation

This course introduces students to the fundamental of electromagnetic radiation (EMR) and its applications in health and medicine. EMR includes the ionising radiation (gamma ray and x-ray) and non-ionising radiation (ultraviolet, visible light, infrared, microwave and radiofrequency). This course provides knowledge regarding the modern concept of atom, radioactivity, classification, source, production and properties of radiation as well as their interaction with matter and effects on biological tissues. The innovative applications of ionising and non-ionising radiation for diagnostic and therapeutic purposes will also be discussed. The course will be conducted via lectures and tutorials. The students will be assessed through test, presentation and final examination.

List of text/reference books:

1. Bushberg, J.T. and et al, *The Essential Physics of Medical Imaging* (3rd Ed.). Lippincott Williams & Wilkins, 2012.
2. William R Hendee, E Russell Ritenour, *Medical Imaging Physics*, (4th Ed.). Wiley-Liss, 2002.
3. William E Prentice and William S Quillen, *Therapeutic Modalities in Rehabilitation*, (3rd Ed.). Mc Graw Hill, 2005.

GTX105/4-Medical Radiation Physics I

This course introduces students to the basic concept of classical physics and relativity. The topics of this course include physical measurement, vector, motion in one dimension, motion in a plane, particle dynamics, energy and work, conservation of energy, conservation of linear momentum, collision, circular motion, rigid body static and gravitation and relativity. The contribution of this physics knowledge to medical radiation research and practice will also be discussed. The course will be conducted via lecture and tutorial. The students will be assessed through test, quiz, assignment and final examination.

List of text/reference books:

1. Halliday, D., Resnick, R and Walker, J., *Fundamentals of Physics*, (10th Ed.). Wiley, 2014.
2. Tippens, P.E., *Physics*, (7th Ed.). McGraw-Hill, 2007.
3. Giancoli, D. C., *Physics: Principles with Applications*, (6th Ed.). Prentice Hall, 2008.

GTX106/3-Mathematics of Radiation Science I

This course introduces students to the advanced mathematics and calculus applied in health and research. It will focus on topics like function and graph, advance function and equality solution, advance geometry, matrix, vector, complex number, limit and the use of first principles in polynomial differentiation, differentiation, differentiation techniques and applications, integration, advance differentiation and integration. This course will be conducted via lecture and tutorial. The students will be assessed through test, assignment, quiz and final examination.

List of text/reference books:

1. Lay, D. C., *Linear Algebra and Its Application*. (4th Ed.). Pearson Higher Education, 2011.
2. Larson, R., Hostetler, R. and Edwards, B.H., *Calculus with Analytic Geometry:Multivariable Calculus*. (7th Ed.). Houghton Mifflin Company College Division, 2002.
3. Anton, H., *Calculus, Combined, Student Resource*. (6th Ed.). John Wiley and Sons, 1998.