Murrieta Valley Unified School District **Board Submission: May 2018**
HIGH SCHOOL COURSE OUTLINE

Course Title: Sports, Exercise and Health Science IB SL

Department: Science

Course Number: 2882

Grade Level/s: 11-12

Length of Course: Year

Prerequisite/s: Successful completion of Chemistry

UC/CSU (A-G) Req: (G) Elective Pending

Brief Course Description: Sports, exercise and health science (SEHS) is an experimental science that combines academic study with the acquisition of practical and investigative skills. It is an applied science course with aspects of biological and physical science being studied in the specific context of sports, exercise and health. Moreover, the subject matter goes beyond the traditional science subjects to offer a deeper understanding of the issues related to sports, exercise and health in the 21st century. SEHS is a good preparation for further education courses related to sports fitness and health, and will be useful for employment in sports and leisure industries.
The course incorporates the traditional disciplines of anatomy and physiology, biomechanics, psychology and nutrition, which are studied in the context of sports, exercise and health. Students will learn a range of topics, and carry out practical (experimental) investigations in both laboratory and field settings. This course will provide an opportunity to acquire the knowledge and understanding necessary to apply scientific principles and critically analyze human performance. When relevant, this course will address international issues and ethics by considering sports, exercise and health relative to the individual and in a global context.

I. GOALS

The students will:

A. Apply scientific principles and creativity within a global context through simulations and challenging sports related activities

B. Understand and apply a body of knowledge, methods and techniques that characterize sports, exercise and health science as well as sports related technology

C. Analyze, evaluate and synthesize scientific information in the context of sports science

D. Understand the need for, and the value of, effective collaboration and communication during scientific activities

E. Develop experimental and investigative scientific skills including the use of current technologies as related to the fields of exercise and sports

F. Apply effective communication skills in the study of sports science

G. Be critically aware, as global citizens, of the ethical implications of using science and technology

H. Understand the possibilities and limitations of science and technology

I. Understand the relationships between scientific disciplines and the influence on other areas of knowledge

II. OUTLINE OF CONTENT FOR MAJOR AREAS OF STUDY

Semester 1

A. Anatomy
   1. The skeletal system
   2. The muscular system

B. Exercise Physiology
   1. Structure and function of the ventilatory system
   2. Structure and function of the cardiovascular system

C. Energy Systems
   1. Nutrition
   2. Carbohydrate and fat metabolism
   3. Nutrition and energy systems

D. Movement Analysis
   1. Neuromuscular function
   2. Joint and movement type
   3. Fundamentals of biomechanics

E. Skill in Sports
   1. The characteristics and classification of skill
   2. Information processing
   3. Principles of skill learning

Semester 2

A. Measurement and Evaluation of Human Performance
   1. Statistical analysis
   2. Study design

3. Components of fitness
4. Principles of training program design

B. Individual/Group Research (choose one topic)
   1. Optimizing physiological performance
   2. Psychology of sports
   3. Physical activity and health
   4. Nutrition for sports, exercise and health

C. Individual/Group Research (choose a second topic)
   1. Optimizing physiological performance
   2. Psychology of sports
   3. Physical activity and health
   4. Nutrition for sports, exercise and health

D. Individual investigation based on internal assessment

E. Group 4 Project in conjunction with students in the other IB science subjects offered

II. ACCOUNTABILITY DETERMINANTS

A. Key Assignments
   1. Students complete 20 hours of practical activities of investigative laboratory work.
   2. Students will complete data based questions for each unit to analyze a given set of data.
   3. Students will complete extended response questions solving a substantial problem or carrying out a substantial piece of analysis or evaluation, which will require them to write a number of paragraphs in response.
   4. Individual investigation: Students will design a purposeful research question that specifically investigates a topic related to the curriculum, but the student has free choice of that topic. The report will reflect the student's personal engagement, exploration, analysis, evaluation and format. This is an internal assessment requirement involving investigation of 10 hours and written report of 6-12 pages. Possible tasks for the individual investigation could include:
      a. Hands-on laboratory investigation
      b. Manipulated or observational fieldwork
      c. Using a spreadsheet for analysis and modeling
      d. Extracting data from a database and analyzing it graphically
      e. Producing a hybrid of spreadsheet/database work with a traditional hands-on investigation
      f. Using a simulation that it is interactive and open-ended.
   5. Group 4 Project (10 hours): The group 4 project is a collaborative activity where students from different group 4 subjects work together on a scientific or technological topic, allowing for concepts and perceptions from across the disciplines to be shared in line with aim 10—that is, to "develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge". The project can be practically or theoretically based. The project allows students to appreciate the environmental, social and ethical implications of science and technology. It may also allow them to understand the limitations of scientific study. The emphasis is on interdisciplinary cooperation

and the processes involved in scientific investigation, rather than the products of such investigation. The choice of topic is open.

B. Assessment Methods
   1. Skill mastery and quality of work
   2. Multiple choice exams
   3. Performance tasks
   4. Individual/group projects
   5. Individual/group presentations
   6. Data-based questions, short-answer questions and extended-response question exams
   7. Internal assessment: individual investigation
   8. Group 4 project
   9. External assessment: official IB exam
   10. Oral language Personal Communication Skills

III. INSTRUCTIONAL MATERIALS AND METHODOLOGIES

A. Required Textbook(s)
   Title: IB Diploma Sports, Exercise and Health Science
   ISBN: 9780199129690
   Format: Print
   Author(s): Sproule, John
   Publisher: Oxford
   Year: 2012
   Additional Info:

B. Supplementary Materials
   1. Laboratory equipment

C. Instructional Methodologies
   1. Direct instruction
   2. Seminars
   3. Class discussions
   4. Group projects/presentations
   5. Cooperative learning
   6. Experiments
   7. Experiential learning
   8. Interactive instruction
   9. Inquiry learning
   10. Project-based learning
   11. Individual student presentations
   12. Adaptations for special needs and English Language learners