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| **Metropolitan Learning Center**  Sports, Exercise and Health Science (SL)  May 2017 - Two-Year Course (2 credits) |

**Instructor and Contact**

**Classroom** – A1

**Email** – [strowe@crec.org](mailto:strowe@crec.org) You should ALWAYS “cc” yourself to show an email was sent. If you do not hear from me, check in – junk mail often acts up!

**School Phone** – 860-242-7834 x 2334

**Class Web Resource –** www.gomlc.com/sehs

**Extra Help Times –** Monday 3-5pm.

**Course Description**

This course involves the study of the science that underpins physical performance and provides the opportunity to apply these principles. The course incorporates the traditional disciplines of anatomy and physiology, biomechanics, psychology and nutrition, which are studied in the context of sport, exercise and health.

Students will cover a range of core and option topics and carry out practical (experimental) investigations in both laboratory and field settings. This will provide an opportunity to acquire the knowledge and understanding necessary to apply scientific principles and critically analyze human performance. Where relevant, the course will address issues of international dimension and ethics by considering sport, exercise and health relative to the individual and in a global context.

**Materials Needed for SEHS**

*Please note this is a suggested list and each student can determine how to best organize and manage their materials.*

* **Clear sheet protectors** for important class documents (25)
* 3-5 packs of **ruled note cards** (100 cards/pack)
* **Highlighters**
* **Sticky notes**
* **Two-pocket Folders (6-8)**
* **MLC Laptop**
* **SEHS Textbook**

**Course Textbook**

# Sproule, John.. *IB Diploma Sports, Exercise & Health: Course Book*: Oxford University Press, 2012. \*\*\*This must be brought to class each day! Students may elect to purchase the books to keep for a 2-year period and they may be highlighted or written in. Estimated cost is $30 - $35/book.

**IB SEHS COURSE Content**

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| **Syllabus component** | **Teaching hours** |
| **Core**  There are six compulsory topics in the core. | **80** |
| **Topic 1: Anatomy** | **7** |
| 1.1 The skeletal system | 4 |
| 1.2 The muscular system | 3 |
| **Topic 2: Exercise physiology** | **17** |
| 2.1 Structure and function of the ventilatory system | 5 |
| 2.2 Structure and function of the cardiovascular system | 12 |
| **Topic 3: Energy systems** | **13** |
| 3.1 Nutrition | 4 |
| 3.2 Carbohydrate and fat metabolism | 2 |
| 3.3 Nutrition and energy systems | 7 |
| **Topic 4: Movement analysis** | **15** |
| 4.1 Neuromuscular function | 4 |
| 4.2 Joint and movement type | 3 |
| 4.3 Fundamentals of biomechanics | 8 |
| **Topic 5: Skill in sport** | **15** |
| 5.1 The characteristic and classification of skill | 4 |
| 5.2 Information processing | 6 |
| 5.3 Principles of skill learning | 5 |
| **Topic 6: Measurement and evaluation of human performance** | **13** |
| 6.1 Statistical analysis | 2 |
| 6.2 Study design | 4 |
| 6.3 Components of fitness | 4 |
| 6.4 Principles of training programme design | 3 |

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| **Syllabus component** | **Teaching hours** |
| **Options**  There are four options. Students are required to study any **two** options. | **30** |
| **Option A: Optimizing physiological performance** | **15** |
| A.1 Training | 5 |
| A.2 Environmental factors and physical performance | 6 |
| A.3 Non-nutritional ergogenic aids | 4 |
| **Option B: Psychology of sport** | **15** |
| B.1 Individual differences | 5 |
| B.2 Motivation | 3 |
| B.3 Mental preparation for sport | 4 |
| B.4 Psychological skills training | 3 |
| **Option C: Physical activity and health** | **15** |
| C.1 Hypokinetic disease | 1.5 |
| C.2 Cardiovascular disease | 3 |
| C.3 Physical activity and obesity | 2 |
| C.4 Physical activity and type 2 diabetes | 2 |
| C.5 Physical activity and bone health | 2.5 |
| C.6 Prescription of exercise for health | 1.5 |
| C.7 Exercise and psychological well-being | 2.5 |
| **Option D: Nutrition for sport, exercise and health** | **15** |
| D.1 Digestion and absorption | 3 |
| D.2 Water and electrolyte balance | 4 |
| D.3 Energy balance and body composition | 2 |
| D.4 Nutritional strategies | 6 |

**SEHS 2018 and 2019 will complete Option A and Option B.**

**IB Group 4 Aims**

Through studying any of the group 4 subjects, students should become aware of how scientists work and communicate with each other. While the “scientific method” may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that distinguishes the group 4 subjects from other disciplines and characterizes each of the subjects within group 4.

It is in this context that the Diploma Program sports, exercise and health science course should aim to:

1. Appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. Acquire a body of knowledge, methods and techniques that characterize science and technology
3. Apply and use a body of knowledge, methods and techniques that characterize science and technology
4. Develop an ability to analyse, evaluate and synthesize scientific information
5. Develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. Develop experimental and investigative scientific skills including the use of current technologies
7. Develop and apply 21st-century information and communication skills in the study of science
8. Become critically aware, as global citizens, of the ethical implications of using science and technology
9. Develop an appreciation of the possibilities and limitations of science and technology
10. Develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

**IB Group 4 (SEHS) Assessment Objectives**

It is the intention of all the Diploma Program experimental science courses that students achieve the following objectives.

**Demonstrate knowledge and understanding** of facts and concepts, methodologies and techniques, terminology and methods of communicating scientific information.

**Apply** facts and concepts, methodologies and techniques and terminology to communicate scientific information.

**Formulate, analyze and evaluate** hypotheses, research questions and predictions, methodologies and techniques, primary and secondary data and scientific explanations.

**Demonstrate the appropriate research, experimental and personal skills** necessary to carry out insightful and ethical investigations.

**IB Assessment**

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| **Assessment component** | **Weighting** |
| **Paper 1 (1 hour)**  Syllabus content: Core (40 marks)  40 multiple-choice questions about 15 of which are common with SL. Assessment objectives 1 and 2. | **80%**  **20%** |
| **Paper 2 (2 hours 15 minutes)**  Syllabus content: Core (Total 90 marks)  Section A: Students answer one data-based question and several short-answer questions on the core and AHL (all compulsory). (50 marks)  Section B: Students answer two extended-response questions on the core and AHL (from a choice of four). (40 marks)  Assessment objectives 1–3. | **35%** |
| **Paper 3 (1 hour 15 minutes)**  Syllabus content: Options (50 marks)  Several short-answer and extended-response questions (all compulsory) in each of the two options studied.  Assessment objectives 1–3. | **25%** |
| **Internal assessment/individual investigation (10 hours)** (24 marks)  Assessment objectives 1–4.  This component is internally assessed by the teacher and externally moderated. | **20%** |

**IB Academic Honesty**

All coursework—including work submitted for assessment—is to be authentic, based on the student’s individual and original ideas with the ideas and work of others fully acknowledged. Assessment tasks that require teachers to provide guidance to students or that require students to work collaboratively must be completed in full compliance with the detailed guidelines provided by the IB for the relevant subjects.

**MLC Class Procedures**

*Knowing what is expected keeps everyone happy - procedures allow students to be independent in the classroom. With solid classroom procedures – the need for rules is reduced. Key procedures are noted below and others are shared in class.*

* **Absences –** A classmate will collect your work for the Buddy Bin
* **Passes –** Passes are not issued in the first 10 minutes of class. A student must fill one out and present it for signing when there is a break in the class. Please sign out before you leave.
* **Calling you in –** A physical and audible call for us to connect.
* **Handing in work –** All work goes in the “bin”
* **Formative work –** Scored with a “circle” around the number. Missing work will be a “NCZ” in the gradebook. If it is handed in late, it will be noted as received/late and scored if relevant. Students are not downgraded for late work although late work is noted.
* **Summative work –** Scored with a “triangle” around the number and identified IN ALL CAPS on PowerSchool. Summative work is due on the assigned day. Acceptance of late work varies by assignment.
* **Assignments -** SEHS daily work and formative assignments are posted on the class blog at [www.gomlc.com/sehs](http://www.gomlc.com/sehs) . Summative assignments are posted on Schoology. Summative tests will always have enough advance notice for students to stay for extra help if desired.
* **Packet –** this word is NEVER used. ☺

**A1 CLASS RULES (and consequences)**

*Class rules are different from room to room….here is what it looks like in A1.*

1. **Materials** – please have the required class materials at the start of class.

2. **On time** – school bells define the start and end of class.

3. **Electronics** – phones, laptops and headphones should be used within the class lesson.

4. **Food and Drinks** – water is fine – all other food must be eaten at the door.

5. **Be kind** – We are all different and it is a beautiful thing! We will use kind words and actions in A1.

**Consequences** – the goal is NOT to punish you….but to help establish practices that will lead to success in class and beyond high school.

* + - Warning
    - Meeting – this is a short meeting with me to talk about the issue and brainstorm
    - Contact – contact with another adult to share the concern and seek support.
    - Time – This is extended time to address the situation

**Accommodations**

Please speak with me if there are changes I can make to enhance your learning experience.

**MLC Assessment**

Students work is assessed formatively and summatively using the following criteria. Each student is provided with a copy of the rubrics in the fall and they are available online at [www.gomlc.com/sehs](http://www.gomlc.com/sehs)

1. Knowing and Understanding 8 points
2. Application of Concepts 8 points
3. Analysis and Evaluation 8 points
4. Internal Assessment 8 points

Category FP – Formative Practice 8 Points

***Formative Work***

Formative work may have a criterion score, a check or comments. Each assignment provides practice for the student and information regarding learning.

- Formative practice assignments from class are posted nightly on [www.gomlc.com/sehs](http://www.gomlc.com/sehs) If a student is absent, they should check online. The student should NOT rely on the online post for assignments. A delayed post by the teacher does not excuse the assignment due date.

- Formative work may be listed under the criterion or in the formative practice category.

- Assignments with a circle around the score are formative.

When a formative assignment is posted on PowerSchool, it will have upper/lower case.

(sample) A – Topic 1 Check in - formative

***Summative Work***

Summative work will be scored against the Criterion rubrics and contribute to the final course grade. Summative assignments are preceded by formative practice. In an effort to save paper, rubrics are not always handed out with a task. A score with a triangle around it indicates a summative assessment.

When summative assignment is posted on PowerSchool, it will be in ALL CAPITAL LETTERS.

(sample) A – TOPIC 1 TEST - SUMMATIVE

***Commitment to Learning Score***

In addition to the student’s academic performance score (above), students receive a “Commitment to Learning” score eight times per year.

***Assignment Submission***

Assignments are not to be emailed. If an assignment is electronic, it will be posted and submitted via Schoology. In-class work should be placed in the bin.

***Late Work***

* **Formative work –**Missing work will be a “NCZ” in the gradebook. If it is handed in late, it will be noted as received/late and scored if relevant. Students are not downgraded for late work although late work is noted.
* **Summative work –**Summative work is due on the assigned day. Acceptance of late work varies by assignment.

***Resubmissions***

The purpose of formative work is to offer you the opportunity to practice the skills you will be summatively assessed on. I welcome any resubmitting of formative work to check for understanding. Summative assignments are not available for revision.

***Plagiarism/Academic Offenses***

Please see the MLC Student Handbook.

### IB SEHS Topic Coverage

### *Note: This is a tentative outline. This outline will be modified and adjusted, as needed.*

**Year 1** (Junior Year)

**Class Orientation**

* Student / Teacher Expectations
* Lab Safety
* MLC/IB policies

**Anatomy**

* 1.1 Skeletal System
* 1.2 Muscular System

**Measurement and Evaluation of Human Performance**

* 6.1 Statistical Analysis
* 6.2 Study Design
* 6.3 Components of Fitness
* 6.4 - Principles of Training Program Design

**Movement Analysis (Part 1)**

* 4.1 Neuromuscular Function
* 4.2 Joint and Movement Type
* 4.3 Fundamentals of Biomechanics

**Internal Assessment Introduction**

**Skill in Sport**

* 5.1 Characteristic & Classification of Skill
* 5.2 Information Processing
* 5.3 Principles of Skill Learning

**Summer Work**

*\*\*\*The topic will be covered in class upon return to school\*\*\**

**Option B - Psychology of Sport**

* B.1 Individual Differences
* B.2 Motivation
* B.3 Mental Preparation

**Year 2** (Senior Year)

**Group 4 Project** 10 hours

**Option B - Psychology of Sport**

* Classroom support of summer study

**Energy Systems**

* 3.1 Nutrition
* 3.2 Carbohydrates & Fat Metabolism
* 3.3 Energy Systems

**Exercise Physiology**

* 2.1 Structure and Function of the Ventilatory System
* 2.2 Structure and Function of the cardiovascular system
* Practical Work

**Option A – Optimizing Physiological Performance**

* A.1 – Training
* A.2 – Environmental Factors and Physical Performance
* A.3 – Non-nutritional Ergogenic Aids

**Revision**

Students will utilize remaining course time prior to external examinations for preparation.

**\*\* Practical Work will meet the IB/SL standard of a minimum of 40 hours**

* B.4 Psychological Skills Training

**IB SEHS Command Terms**

These command terms indicate the depth required for a given assessment statement. A more detailed list of terms will be provided in class.

**Objective 1/Criterion A**

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| **Define** | Give the precise meaning of the word, phrase or physical quality. |
| **Draw** | Represent by means of pencil lines (always label unless told NOT to do so). |
| **Label** | Add labels to a diagram. |
| **List** | Give a sequence of names or other brief answers with NO explanation. |
| **Measure** | Find a value for a quantity. |
| **State** | Give a specific name, value or other brief answer without explanation or calculation. |

**Objective 2/ Criterion B**

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| **Annotate** | Add brief notes to the diagram or graph. |
| **Apply** | Use an idea, equation, principle, theory or law in relation to a given problem or issue. |
| **Calculate** | Find a numerical answer showing the relevant stages in the working(unless instructed not to do so). |
| **Describe** | Give a detailed account. |
| **Distinguish** | Give the differences between two or more different items. |
| **Estimate** | Find an approximate value for an unknown quantity. |
| **Identify** | Find an answer from a number of possibilities. |
| **Outline** | Give a brief account or summary |

**Objective 3/ Criterion C**

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| **Analyze** | Break down to bring out the essential elements or structure. |
| **Comment** | Give a judgment based on a given statement or result of a calculation. |
| **Compare and Contrast** | Give an account of similarities and differences between two (or more) items, referring to both (all) of them throughout. |
| **Construct** | Represent or develop in graphical form. |
| **Deduce** | Reach a conclusion from the information given. |
| **Derive** | Manipulate a mathematical relationship(s) to give a new equation or relationship. |
| **Design** | Produce a plan, simulation or model. |
| **Determine** | Find the only possible answer. |
| **Discuss** | Give an account including, where possible, a range of arguments for and against the relative importance of various factors, or comparisons of alternative hypotheses. |
| **Evaluate** | Assess the implications and limitations. |
| **Explain** | Give a detailed account including reasons or causes. |
| **Predict** | Give an expected result. |
| **Show** | Give the steps in a calculation or derivation(origin). |
| **Sketch** | Represent by means of a graph showing a line and labeled but unscaled axes, but with important features (for example, intercept) clearly indicated. |
| **Solve** | Obtain an answer using algebraic and/or numerical methods. |
| **Suggest** | Propose a solution, hypothesis or other possible answer. |