2021-2022

**[223.3046] – [מנגנונים מולקולרים של תאי גזע]
Semester [A]**

**Time:** [Wednesday] [14:00-16:00], Room [Room Number]

**Instructor:** [Prof] [Hila] [Toledano], **Email:** [hila@univ.haifa.ac.il]

**Office Hours:** Wednesday 12:00-14:00 - Upon e-mail appointment

**Teaching Assistants & Office Hours: No**

**Course Level:** (BA+MA)**:**

**Course Type & Format:** [Elective],[Seminar]

**Number of Hours/Credits: 2**

**Prerequisites:** Molecular Biology A

**Course Overview (Short Abstract):**

We are entering a new era in which a fundamental understanding of developmental biology and regeneration plays a critical role. In this course, embryonic and adult stem cells in different organisms are examined in terms of their molecular, cellular, and potential therapeutic properties. Genetic reprogramming and cloning of animals are critically evaluated.

**Learning Outcomes (What are the skills, abilities, or major concepts a student is expected to acquire in this course?) – At the end of the course students will be able to:**

1. Type of stem cells: Embryonic and Adult (Tissue) stem cells
2. Epigenetic, pluripotent stem cells and Reprograming
3. microRNAs and stem cells
4. Adult stem cells: gut, muscles, germline and hematopoietic

**Assessment (Assessment Method and Grade Composition):**

Requirement –Attendance and participation 10%, Middle semester Exam 40%, Class presentations 50%

**Week-by-Week Content and Assignments:**

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| **Week #** | **Topic** | **Assignment**  |
| 1 (26.10) | Type of stem cells: Embryonic and Adult (Tissue) stem cells and definition | No |
| 2 (2.11) | Embryonic stem cells | No |
| 3 (9.11) | Epigenetics, pluripotent stem cells and reprogramming |  No |
| 4 (16.11) | microRNAs in stem cells | No |
| 5 (23.11) | Adult stem cells (types and definition), gut stem cells | No |
| 6 (30.11) | Muscle and germline stem cells  | No |
| 7 (7.12) | Questions for the exam | No |
| 8 (14.12) | Middle semester Exam 40% | Middle semester Exam 40% |
| 9 (21.12) | Student seminar | Reading the paper and participation |
| 10 (28.12) | Student seminar | Reading the paper and participation |
| 11 (4.1) | Student seminar | Reading the paper and participation |
| 12 (11.1) | Student seminar | Reading the paper and participation |
| 13 (18.1) | Student seminar | Reading the paper and participation |

**Reading List:**

1. Seminar papers will be given weekly