2021-2022

**Advanced approaches in aging models -225.4016
Semester B**

**Time:** Thursday 11:00-14:00, Room 617, main building

**Instructor:** Prof. Gil Atzmon, **Email:** gatzmon@univ.haifa.ac.il

**Office Hours:** Tuesday 11:00-13:00, Lab 171 multipurpose building, 04-8280765

**Teaching Assistants & Office Hours:** None

**Course Level:** BA+MA+Ph.D

**Course Type & Format:** Elective,Lecture (student presentation) and Seminar (scholar guest)

**Number of Hours/Credits: 3**

**Prerequisites:** None

**Course Overview (Short Abstract):**

The aim of the course is to provide a theoretical and empirical framework for understanding, evaluating and conducting research on aging. Topics to be discussed: Factors that may contribute to age-dependent differences in model animals, mitochondria, cell aging, clinical condition, reproductive system, liver, frailty, longevity and DNS repair. The student will also review various systems and models that provide protection against aging.

**At the end of the course students will be able to:**

1. Independently search, trace and understand, literature contain aging material.
2. Critique and assess scientific report data and age associated literature.
3. Present their own selected paper including aging associated concept.
4. Lead discussion on a topic of his/her choice.
5. Expose to variety of approaches to study aging.

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

Attendance and Class presentations and leading discussion – 100%

**Week-by-Week Content and Assignements:**

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| **Week #** | **Topic** | **Assignment –presentation by the student and lead discussion on the subject** |
| 1 | Epigenetic and longevity by Prof. Gil Atzmon | Over view on the field of longevity and epigenetic, Discuss a paper on the topic |
| 2 | Frailty using zebra fish as an animal model by Prof. David Karasik | Over view on the field of frailty among elderlies, Discuss a paper on the topic |
| 3 | Aging biomarkers by Prof. Vadim Fraifield | Over view on the field of Aging biomarkers, Discuss a paper on the topic |
| 4 | Aging big data analysis by Prof. Yaniv Erlich | Over view on the field of big data analysis, Discuss a paper on the topic |
| 5 | Senescence using nematodes as an animal model by Prof. Sivan Kornblit | Over view on the field of senescence, Discuss a paper on the topic |
| 6 | Chromatin aging by Prof. Michael Klutstein | Over view on the field of oocytes’ chromatin and its modification during aging, Discuss a paper on the topic |
| 7 | Chromatin modification and DNA repair by Prof. Debbie Toiber | Over view on the field of DNA repair and its impact on chromatin modification during aging, Discuss a paper on the topic |
| 8 | Liver metabolism and aging by Dr. Tzachi Reizel | Over view on the field of liver metabolism during aging, Discuss a paper on the topic |
| 9 | Aging mitochondria by Prof. Dan Mishmar | Over view on the field of mitochondria structure and function during aging, Discuss a paper on the topic |
| 10 | Kilifish as a model for aging by Dr. Itamar Harel  | Over view on the killifish (a short live organism) and how it can be use as an animal model to study aging , Discuss a paper on the topic |

**Website:**

None

**Reading List:**

 Per assignment