NS102: Syllabus (Course Rules and Expectations)

Course Description and Objectives:

Science of Nature courses aim to initiate a curiosity and desire for learning “scientific thinking” in students and at the same time to introduce some of the basic concepts of physical, chemical and biological sciences in connection with questions concerning nature and our daily life.

The **NS 102** course consists of two modules: **“(1) Can we stop/reverse climate change?”** and **“(2) Can we ever comprehend the workings of the brain?”** Scientific methodology and fundamental concepts in the physical, chemical, and biological sciences are introduced through an integrated approach in the framework of these questions.

Upon completing NS 102, students will be able to:

1. Demonstrate skills for critical thinking, reasoning and problem solving through integration of different concepts and information.
2. Distinguish among scientific laws, hypothesis and theory and use them to differentiate facts from fiction.
3. Apply mathematical concepts to solve quantitative problems.
4. Demonstrate fundamental knowledge of the terminology, major concepts and theories of one or more fields in physical, chemical, and biological sciences.
5. Describe the role of science and technology, and develop skills for communicating scientific concepts and facts to society in general.
6. Demonstrate professionalism and ethics when using scientific approach to make informed decisions in daily life situations.

Lecture Sections and Room / Zoom Information:

❊ **All face-to-face class will take place in FASS 2119/2128**

When am I allowed to join a face-to-face class? Please read the information on the NS102 Home page and check your **group assignment** and **designated dates**!

Section	Time	Zoom links	TopHat join codes
A/B	**Tuesday 14:40-16:30**	https://sabanciuniv.zoom.us/j/95231929762?pwd=RG9oR29oZHBQbTlJa2dGOUhHT240Zz09	Physical: 311890 Online: 841831
C/D	**Wednesday 08:40-10:30**	https://sabanciuniv.zoom.us/j/99084152060?pwd=MUtUdWhFVE1sNklsdTVyeTY1eXcrdz09	Physical: 152901 Online: 866816

Instructors:

	1. CLIMATE MODULE Can we stop/reverse climate change?	2. BRAIN MODULE Can we ever comprehend the workings of the brain?
Instructors	**Dr. Tuğçe Yüksel** (webpage) tugce.yuksel@sabanciuniv.edu Office: FENS 2084 Phone: 9987 Office Hour:	**Dr. Zeynep Delen Nircan** zeynep.delen@sabanciuniv.edu Office: UC1083/1089 Office Hour:
	Dr. Burç Mısırlıoğlu (webpage) burc.misirlioglu@sabanciuniv.edu Office: FENS G046 Phone: 9562 Office Hour:	**Dr. Zehra Sayers** zehra.sayers@sabanciuniv.edu Office: FENS 2087 Phone: 9509 Office Hour:
Course Coordinator	**Dr. Yuki Kaneko** (webpage) **ns102@sabanciuniv.edu** (for course related topics) yuki.kaneko@sabanciuniv.edu (for personal emails) Office: UC1083/1089 Phone: 9709 **Appointment link:** **https://calendly.com/yuki-kaneko/office-hour** (for both physical and online office hour appointment)	

Recitation Sections Zoom Information:

Section	Time	Zoom Links	Teaching Assistants (TAs)*	Learning Assistants (LAs)
A1	**Friday 10:40-12:30**	https://sabanciuniv.zoom.us/j/98139436098?pwd=V1FibkQyU20wWmRpTm1mVnZlTzJnUT09	**Solomon Birhanu Samuel (MTA)** Beril Üstünkaya Saifa Amin Ndiogou Niang	Şevval Bulut Minel Sena Sakarya

B1	**Friday 13:40-15:30**	https://sabanciuniv.zoom.us/j/99913824559?pwd=d3hEdW5XVE13L0crcEFnYTN5OUF6UT09	**Melike Nur Önder (MTA)** Ndiogou Niang Burak Ölmez Saifa Amin	Ece Yücel Aniq Mansuri
C1	**Friday 15:40-17:30**	https://sabanciuniv.zoom.us/j/95337990752?pwd=QWhpRnhwVEM3Mm55ZWZPdGF4a0VNUT09	**Ebru Çetin (MTA)** Elham Ghorani Sumaiyah Najib Solomon Birhanu Samuel	Ece Yücel Aniq Mansuri

*** MTAs** (Master TAs) are the lead TAs in recitations. Contact information of all MTAs and TAs are provided below.

Course Materials:

There is **no course book** for this course; however, there are collections of **Weekly Resources** provided on SUCourse under the module page (Climate Module or Brain Module) sorted under the weekly tabs (CLT1, BRN4, etc).

Recommended Books

- "*Conceptual Integrated Science*", P. G. Hewitt (an e-copy available at the Information Center, click this link - you can check it out for 24 hours at a time)
- "*Science of Nature I*", M. A. Alpar (PDF version available on SUCourse. Turkish version, "Doğayı Öğrenmek - Fizik" will also be available at the Information Center, on student reserve; several copies available for purchase at Homer)

Top Hat (online response system)

In Active Lectures, we will be using an online response system called Top Hat accessible from tophat.com on your web browser or through a free Top Hat app (tophat.com/mobile-apps) if using tablet. Most of you already have an account from the previous semester. If you have not used the system before, please review this "Getting Started" guide before the first lecture. You must log in Top Hat with your SU email account name or it will not be counted.

Academic Integrity:

Academic Integrity Policy -- YOU MUST READ AND FOLLOW as a proud member of Sabancı University!

Each of you will be evaluated only for your own work. You are encouraged to work and study together with your friends; however, what you put down on your worksheets, quiz, assignments and exam papers should be your own work in your own words. Note also that allowing your friends to copy your work is not helping them in any way and considered a violation of academic integrity principle.

Violations of academic integrity principle will result in zero grades for that assignment or exam, for all parties involved. In addition, the involved students will receive a warning, and no matter how minor, cheating will result in immediate disciplinary action that may result in failing the course.

We do not tolerate any breach of academic integrity. We have mutual trust and respect for each other as individuals while sharing a collaborative learning experience. This is very valuable for all of us, and having to lose this trust and respect would be very regrettable.

For the University's Academic Integrity Statement, see:
http://www.sabanciuniv.edu/en/academic-integrity-statement

Weekly Course Structure:

Weekly organization of this course is shown in the table below. Each week, there is a set of specific learning objectives for you to achieve. You can find the learning objectives listed in the module page on SUCourse+.

It is your responsibility to check SUCourse+ frequently and follow assignments and announcements.

	In-Class Sessions	Out-of-Class Responsibilities
Tuesday	Active Lecture (Section A/B)	**By 1 PM,** submit the **virtual lecture** assignment of this week
Wednesday	Active Lecture (Section C/D)	**Evening:** Check the weekly page (CLT1, CLT2 etc) on SUCourse+ for the **virtual lecture set** of next week. Start working on it early.
Thursday		**By 10 PM,** submit the **homework** of the previous week.
Friday	Recitation (All sections)	**Evening:** check the weekly page for the **homework** assignment and the review problem set.

Saturday-Monday		Work on the Weekly review problems and take the **homework** assessment of this week. Complete and submit the **virtual lecture** assignment of the upcoming week.

Course Requirements and Grading Policy:

There will be two exams (each one at the end of each module) and 14 weekly assignment sets during the semester.

The overall course grade will be evaluated based on the exams, assignments and lecture participation, each weighing as given in the table below. Please note that **55%** of your course grade is based on your exam performance because the exams assess your **individual achievement** level of the weekly learning objectives.

Virtual Lecture *	**10%**
Active Lecture	**15%**
Exams	**55%**
Recitation	**10%**
Homework *	**10%**

* Lowest 3 grades will be dropped

Exams:

The exam scores are out of 100 each. The first exam will include the topics from the first module, and the second exam will include the topics from the second module only. All exams will be given in person, on campus. The exam rules will be announced prior to the exam. In the case of non-compliance with the rules and other declared exam procedures, your exam will be void.

Virtual Lecture (VL):

The aim of virtual lecture is for you to learn the basic concepts of the upcoming week before the in-class active lecture. Each virtual lecture set includes several interactive videos and quizzes in a sequential order. You can go over the VL set and take the quizzes as many times as you need. The virtual lecture sets are **10%** of the total grade. The **maximum** score will be recorded in your Gradebook **until the due date/time**. It is due at **1:00 PM on Tuesdays**, and no late submission will be accepted.

Active Lecture (AL):

The Active Lectures will be given in a **hybrid** format; you will take turns to attend lectures in a physical classroom and online lectures in other weeks. The weeks you are expected to come to the physical classroom are pre-determined based on the groups you are assigned to. Please check your assigned groups **here** and mark your calendar the **dates** you are expected to come to the classroom.

During the AL hours, you will be actively working with your peers to apply and deepen your understanding of the concepts you learned from the virtual lecture set, with the guidance of the instructor. You must complete the virtual lecture set in order to get maximum benefit from the active lecture each week. Also, you MUST bring your laptops or tablets to each lecture to your physical classroom. If you are attending an online in Zoom session, **set up your working area in a quiet and undisturbed place. Please make sure that you have a well-working laptop/computer (or Tablet) with a working camera and a microphone.**

You are not allowed to submit answers to TopHat questions from outside the classroom/session nor submit for another student. Such cases are considered as academic dishonesty and require disciplinary action. The active lecture grades will be calculated based on your participation during the lectures (both physical and online combined). Your cumulative percentage (total points you get/ maximum available points) is recorded as your lecture grade, which is **15%** of your total course grade.

The final Top Hat % will be converted to the lecture participation grade as follows:

- If >80% = 15 points (regardless of your %, 15 points is the maximum you can receive)
- If below 80%, the lecture grade = 15 x (your %) / (80%) points

Recitation:

The aim of the recitation is to enhance conceptual understanding in the collaborative learning environment through problem solving, simulations and group discussions. Recitations will be held online in Zoom Sessions. You should set up your working area in a quiet and undisturbed place where you can speak. Please make sure that you have a well-working laptop/computer (or Tablet) with a working camera and a microphone. You must keep your camera and microphone on during the recitation hours.

What do I do during the recitation?

You will be assigned to a small peer group and work collaboratively on problems provided in an online worksheet. Throughout the session, the recitation team (Master TAs, TAs, or LAs) visit your breakout rooms and assist/guide you by asking questions to assess your understanding and progress. When you are done solving a problem, you will present your complete solution as a group to a TA or LA, who will ask you further questions and give you feedback. Make sure that each group member is individually prepared to present their solution. As a group, you can work at your own pace but you are encouraged to present your solutions for at least one problem each week.

How do I receive a grade for the recitation?

At the end of the recitation each week, you will be asked one “reflection” question. By answering the question, you will reflect on your own learning process and progress made. Each reflection is worth 1 point; The total sum of your weekly reflection points will be your recitation grade (**10%** of your course grade).

Additionally, since your participation in group discussions and problem solving is CRUCIAL for your learning, a **bonus point** (1 point) may be awarded to students who contribute to group work in a constructive and consistent manner, with camera and microphone on at all times throughout the semester.

Homework:

The aim of the homework is to reflect your understanding of the week’s contents and concepts. Homework assessment must be submitted on SUCourse+ by **10:00 PM on Thursdays**, every week. **No late submission** will be accepted, but until the deadline you can retake the homework assessment **five times**, to improve your grade. Only the highest score will be recorded. Homework grades are **10%** of the total grade.

Calculating your overall grade:

For Virtual Lecture, Recitation and Homework, the lowest 3 grades will be dropped when calculating the average of each item and the following formula will be applied to calculate the overall grade.

Overall Grade = [Midterm] × 0.225 + [Final] × 0.225 + [Recitation] + [Homework] + [Virtual Lecture] + [Active Lecture]

Please note:

- The first decimal place of 5 and larger will be rounded up to the next integer (e.g., 67.5 → 68).
- If your exams' average (Midterm and Final) is below 30, you will fail the course regardless of your overall course grade.
- Failing to take one of the exams will result in failing the course.
- The letter grade ranges which will be used as a guideline, are provided in the table below.
- If your course grade is in the range of 49-40, your status will be reviewed by instructors based on your exam average **and course participation**.

Letter Grade	Overall Average	Conditions
A	100-90	Exam average ≥ 30
A-	89-85	
B+	84-80	
B	79-75	
B-	74-70	
C+	69-65	
C	64-60	
C-	59-55	
D+	54-50	
D or F	49-40	Your status will be reviewed by the instructors based on your exam average and course participation
F or NA	39-0	

NA Policy:

- If you miss one of the exams, you will automatically receive F for the course
- If you miss one of the exam AND you have attempted less than 50% of all non-exam assessments (including active lecture attendance), you will receive NA

Make-up Policy:

- **For Lectures / Recitations:**
  - There will be **no make-up** for missed recitations or lectures; instead, the lowest 3 grades of recitations will be dropped. Thus, no medical report will be accepted.

- **For Exams:**
  - If you cannot take an exam for a health-related reason, you need to inform the course coordinator by e-mailing to **ns102@sabanciuniv.edu** at the earliest opportunity while you are still ill. **Later claims will not be accepted**.
    - You must obtain a medical report on the day you become ill, either from the campus Health Center (if you live on campus) or from the doctor that you went to see (if you live outside the

campus). The report obtained outside the campus must be approved by a doctor at the Health Center on campus: please check the medical report guideline issued by the Health Center before you go to a doctor.

- If you cannot come to an exam due to other reasons (emergency, school-related activities, etc.), you must inform the course instructor or coordinator at the time of your missed exam and must obtain a proper permission from her to attend a make-up exam. Later claims will not be accepted. Without the proper permission from the coordinator, you will not be allowed to take the make-up exam.
- Make-up for each exam will be given at the earliest convenience.

Course Schedules:

Week	Dates		Topics	Recitation*
	Begin	End		
CLIMATE MODULE				
1	27 SEP	1 OCT	**CLT1:** Why is there a "Climate Debate?" How should we interpret data?	CLT1
2	4 OCT	8 OCT	**CLT2:** The Earth has an "Energy Budget" that is kept in balance.	CLT2
3	11 OCT	15 OCT	**CLT3:** Human activities that increase the concentration of greenhouse gases in the atmosphere contribute to climate change.	CLT3
4	18 OCT	22 OCT	**CLT4:** The oceans play a big role in climate change.	CLT4
5	25 OCT	29 OCT	**CLT5:** Does the climate change theory contradict the second law of thermodynamics?	No Recitation
6	1 NOV	5 NOV	**CLT6:** Humans choose to burn fossil fuels not just because they generate a lot of energy, fast.	CLT6
7	8 NOV	12 NOV	**CLT7:** Human factors in climate change and alternative energy **Midterm Exam: Sunday, 14 November**	CLT7
BRAIN MODULE				
8	15 NOV	19 NOV	**BRN1:** How complex is the brain? How can we understand how it works?	BRN1
9	22 NOV	26 NOV	**BRN2:** All cells maintain a potential difference to sense the world	BRN2

10	29 NOV	3 DEC	**BRN3:** Information is communicated in cells through electricity: Action potential.	BRN3
11	6 DEC	10 DEC	**BRN4:** Neuronal cell membrane can be mathematically modeled by simple circuits	BRN4
12	13 DEC	17 DEC	**BRN5:** Neurons Communicate Fast, Efficiently and Continuously to Keep Us Functioning	BRN5
13	20 DEC	24 DEC	**BRN6:** How can we measure brain activity and interpret the data?	BRN6
14	27 DEC	31 DEC	**BRN7:** How does the brain function and how does our mind work? Inner workings of brain and cognitive science **Final Exam: TBA**	No Recitation

*CLT: Climate module worksheet, BRN: Brain module worksheet

ADP Peer Study and Discussion Sessions:

Peer Study/Discussion Sessions of Academic Support Program (ASP/ADP) are based on collaboration with your peers and aim to develop your critical thinking, communication, and study skills. You may attend the sessions to improve your academic success in NS 102.

Registration is required and the capacity is limited.

You may find out weekly schedule and do the registration from this link:
https://drive.google.com/file/d/1C0I6-MtKNBSJvN2U5oedi5bevuB6pqtt/view