

**The Ohio State University  
First-Year Seminar Program  
Course Proposal**

**Course Information**

1. Attach a sample syllabus that includes the following. (Sample syllabi can be found at <http://firstyearseminars.osu.edu>).

- the course goals
- a brief description of the content
- the distribution of meeting times
- a weekly topical outline
- a listing of assignments
- grade assessment information (A-E or S/U)
- required textbooks and/or reading list
- the academic misconduct and disability services statements (sample statements can be found at <http://asccas.osu.edu/curriculum/asc-syllabus-elements>)

2. Attach a brief biographical paragraph that includes the current research interests, teaching awards and honors, and undergraduate courses taught by the participating instructor(s). The paragraph will be included in materials for first-year students.

VENKAT GOPALAN + KARL ROTH, CHEMISTRY + BIOCHEMISTRY

Proposer's Name and Primary Academic Unit (please print)

PROFESSOR (VK) + VISITING SCIENTIST/SCHOLAR (KR)

Proposer's Title

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614-292-1332

Proposer's e-mail Address

Contact Phone Number

MARCH 01, 2018

Submission Date

SUSAN OLESZK, PROFESSOR + CHAIR

Approval of Department Chair of Academic Unit (please print)

**This form and any attachments should be mailed to First-Year Seminar Program, 100 Denney Hall, 164 Annie & John Glenn Avenue, ATTN: Todd Bitters or e-mailed to [bitters.4@osu.edu](mailto:bitters.4@osu.edu).**

**First-year Seminar, Fall 2018**  
**Curiosity and The Human Experience**  
**Karl S. Roth, M.D.**  
**Venkat Gopalan, Ph.D.**

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***1. Sample syllabus***

***Course goals***

By encouraging free-ranging curiosity among course participants, the overarching goal of the course is to broaden the students' perspectives on science and society. Participants will evaluate the premise that humans are hard-wired for curiosity, and explore how this attribute has contributed to the advancement of human understanding of the universe. The classroom discussions are expected to enrich the students' college experience, both within and outside their major.

***Content***

We have selected a group of individuals (e.g., Embden, Leeuwenhoek, Mendel, Newton), whose curiosity and their searches for answers led to the development of key disciplines far reaching in scope and value. Students will be encouraged to use their imagination to place themselves in a state of relative ignorance, as were the individuals under consideration, and then navigate the path from the initial question to the final answer. To demonstrate the holistic nature of human endeavors, students will also be urged to consider the tools from other disciplines that were used during these journeys.

***Meeting times***

Fridays, 3:00 to 3:55 PM, 773 Biological Sciences Building, 484 West 12<sup>th</sup> Avenue

### ***Weekly outline of topics***

Each seminar session will involve discussion of a specific individual, taking into account various factors elaborated below (see *Listing of assignments*). Here is a tentative list of the individuals that we plan to discuss.

1. Aug 24 - Introductory session
2. Aug 31 Johannes Gutenberg: development of literacy
3. Sept 7 Isaac Newton: basis of modern physics
4. Sept 14 Leeuwenhoek: genesis of microbiology
5. Sept 21 Mendel: father of genetics
5. Sept 21 Galileo: observational astronomy and a new view of the universe
6. Sept 28 Columbo: discovery of blood circulation
7. Oct 5 J. Priestley: discovery of Oxygen
8. **Oct 12 Fall Break (no classes)**
9. Oct 19 Embden and Meyerhof: Carbohydrate metabolism
10. Oct 26 Piaget: Cognitive development
11. Nov 2 Becquerel and Curie: Radiation
12. Nov 9 Bohr: Quantum model of the atom
13. Nov 16 Einstein: Theory of General Relativity
14. **Nov 23 Thanksgiving break (no classes)**
15. Nov 30 Final wrap-up session

### ***List of assignments***

Students will have access via Canvas/Carmen to a reading list that includes short biographical details, synopses of the work of each person, and how a chain of

investigations led to advances in human knowledge. Students will be expected to prepare for each session by reading the assigned material and by familiarizing themselves with tools from contemporary ancillary disciplines that were used to address unanswered questions. They will also be expected to explore source material largely to explain how the curiosity of the individual under consideration led to subsequent discoveries. We will place on reserve in the BPL library books that are pertinent to the mainstay (e.g., *Microbe Hunters* by Paul de Kruif), and guide students to important resources such as the Nobel archives ([www.nobelprize.org](http://www.nobelprize.org)).

### ***Required textbooks or reading assignments***

While no textbooks are required, students will have to read articles posted on the course website [e.g., Whitesides (2018) Curiosity and science. *Angew. Chem. Int. Ed.* **57**: 2-6].

### ***Grading***

Students will be graded S/U, based on their participation in active discussion, as well as their evident initiative in reading assigned and other source materials (i.e. their curiosity). No more than two excuses will be allowed barring medical exigencies.

### ***Instructors***

Primary (Lead): Karl S. Roth, Visiting Scientist, Department of Chemistry & Biochemistry (703 BioSci, 484 W 12<sup>th</sup> Ave)

Secondary: Venkat Gopalan ([gopalan.5@osu.edu](mailto:gopalan.5@osu.edu)), Professor, Department of Chemistry & Biochemistry (774 BioSci, 484 W 12<sup>th</sup> Ave)

*Note: Dr. Roth's appointment was recently approved, and will soon have an OSU email.*

### ***Academic integrity***

Students are required to read OSU's Code of Student Conduct ([oaa.osu.edu/coam](http://oaa.osu.edu/coam)), and submit a signed statement that they have read and understood OSU's academic

misconduct policy. Key facets of this policy are reproduced here *verbatim* from [oaa.osu.edu/coam](http://oaa.osu.edu/coam).

*“Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University’s Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University’s Code of Student Conduct may constitute “Academic Misconduct.”*

*The Ohio State University’s Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination.”*

### ***Disability services***

Students are encouraged to arrange a private meeting to discuss accommodation options if he/she believes that such steps are necessary to overcome academic obstacles caused by a disability. The following statement is reproduced verbatim from <http://www.ods.ohio-state.edu/faculty-staff/syllabus-statement/>:

*“The University strives to make all learning experiences as accessible as possible. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with the instructor as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.”*

## ***Biographical statements***

***Karl S. Roth:*** Following completion of my residency training, I began my teaching career at University of Pennsylvania as a Fellow in Genetics and Metabolism. In this role, I was responsible for providing teaching seminars for medical students and residents. In addition, I was involved in an outreach program to local high schools in the Philadelphia area, providing lectures on the nature of genetic disorders. After moving to the Medical College of Virginia, I served as co-director of the Guaranteed Medical Admissions Program, which enlisted outstanding high school seniors heading for medical careers. In this position, I interviewed students and parents, as well as providing regular, biweekly basic lectures on various medically-related subjects to these students as they moved through their undergraduate years. In addition, I served as a co-mentor for students in this program during their four undergraduate years, and in some cases, while in medical school. I also served on the Admissions Committee of the medical school for 12 years, in the process interviewing senior undergraduates and, again, in some cases continuing as their advisor upon entering.

I am greatly interested in the history of science and of medicine, in particular; over the past 40 years, it has become clear to me that medicine is but one discipline that has benefited from multiple human endeavors, as have many others. It is this holistic view of the results of human curiosity that I would like to convey to undergraduates, with the expectation of broadening their world-views and enriching their educational experience.

***Venkat Gopalan:*** I have been at OSU for 20 years, and am now a Professor in the Department of Chemistry and Biochemistry. I have taught various undergraduate and graduate level courses in biology and biochemistry. My current teaching duties include Intermediary Metabolism, a core course that is mandatory for Biochemistry majors, and Methods in RNA Biology, an elective course for doctoral students in life sciences. I have always been interested in history, an attraction that has morphed more specifically into the genesis of scientific knowledge. Encompassed within this broad theme is this course that evaluates how curiosity has always been the major driver for understanding nature. I am pleased to work with the lead instructor, Dr. Karl Roth, on developing the framework for this course and participating in some of the discussions.