

Counselor jobs at the **2020 Ross Mathematics Program**.

Thanks for your interest in working as a Counselor at the Ross Program. This program is an intensive, residential, summer session for high school students who are deeply interested in math. Information about this math camp is posted at RossProgram.org .

We plan to hire several counselors at each Ross site. Counselors should be upper-division undergraduate math majors or math graduate students, who have done well in a college course on Abstract Algebra. A large part of a counselor's job is to help students learn how to write mathematical proofs in a logical exposition using clear English. Consequently, counselors need prior experience with logical arguments and proof-writing. Counselors should also have strong social skills, well able to inspire their "family" of high school students to work on the challenging problems for the Ross course on Number Theory.

Ross/USA is six weeks: Saturday June 20 through Friday July 31, 2020 at Ohio Dominican University in Columbus Ohio, USA. Counselors receive \$4500 salary plus room and board (shared dorm room and cafeteria food). We are unable to provide reimbursement for travel.

Arrive Friday afternoon or Saturday morning, in order to attend training sessions starting at noon on Saturday.

Prof Jim Fowler (OSU) will lead the Number Theory course. We expect to run two courses for counselors and JCs. One will be led by Prof Bergelson (OSU) on a topic to be announced. The other will be on *Geometric Group Theory* and led by a team of young research mathematicians. There will also be some short-courses and special lectures.

Ross/Asia is five weeks: Saturday July 4 through Friday August 7, 2020 on the campus of a modern boarding school in Changzhou, Jiangsu Province, China. All classes and most discussions will be in English. Counselors receive \$2500 salary plus room and board (shared dorm room and cafeteria food), and also get full travel reimbursement up to a max of \$2000.

Arrive in Shanghai on Friday to meet our chartered bus early on Saturday morning.

Prof Tim All (Rose Hulman) will lead the Number Theory course. An advanced course will be organized by Prof Paul Pollack (UGA). Some short-courses and special lectures are also planned.

Home Stay. Non-Chinese participants are invited to join our "home-stay" program: Arrive early and live with a Chinese family for a week. No extra fees are involved.

Here is a brief description of the Ross Counselor job, followed by application information.

JOB DESCRIPTION. A Ross counselor's job has both mathematical and social aspects. Campers, JCs (junior counselors), and counselors live in a dormitory, with roommates. Each counselor supervises a "family" of about five people. This involves reading and grading each camper's work on the daily sets of math problems, discussing mathematical questions with them, and encouraging them to stay on task and concentrate on the problem sets. Counselors are also responsible for most aspects of dormitory life, setting the tone, acting as role models, supervising student behaviors, and generally making efforts to have things run smoothly. Counselors are also students, participating in the challenging advanced math courses taught by faculty. Counselors are encouraged to present informal math lectures to others who are interested.

All participants attend the number theory lecture at 9:00 every weekday morning. Students and JCs attend problem seminars on MWF. Advanced courses will run in the afternoons. Otherwise the days are unscheduled, . . . except for the expectation that everyone spends all waking hours working on math problems! (There are no assigned study groups.)

Students do not bring computers, electronic tablets, TVs, or gaming systems. Use of smart phones is kept to a minimum. (Each counselor brings a laptop, understanding that students might occasionally ask to use that computer for some authorized purpose.)

This highly focused atmosphere works well for most Ross kids, but occasionally a few of them try to avoid learning new ideas. When counselors show them that mathematical ideas are really interesting, those disengaged students are sometimes inspired to rejoin the group.

TO APPLY: Send your response to: ross@rossprogram.org.

Respond in the body of an email, or in an attached PDF. (Other formats might fail to work.)

- Ask a mathematician who knows you to email us saying how strong you are in mathematics, and how mature you are in social situations. (More than one recommendation is OK.)

(1) Which Ross sites are you applying to:

USA only, prefer USA, prefer Asia, Asia only.

Will you be able to attend all days of the sessions(s) you are requesting?

(2) Demographic info:

What is your legal name (first-name, family-name)? Your nickname?

What is your gender (M or F)?

On what date were you born? How old are you now?

Where did you grow up and go to high school?

Which email address is best to use from now through the end of next summer?

(3) Citizenship: List countries for which you have a passport (not just a visa).

[See the citizenship note at the end of this document.]

(4) What colleges have you attended so far, and which years were you there?

What is your concentration (major) at your current university? What degree are you working toward and when do you expect to graduate?

(5) Did you attend a summer math program as a high school student? Have you worked as a counselor at a math camp (or other sort of camp)? Have you been involved in math competitions? Please provide some details.

(6) What do you plan to do after graduating? What are your longer-term career plans?

(7) To what extent do you know topics of number theory and abstract algebra?

The Ross course is proof-based and touches on many topics. To evaluate the campers' mathematical work, Counselors will become familiar with the topics listed at Ross Number Theory Topics.

- If you don't know those topics now, do you feel confident that you can learn them quickly?

(8) What areas of math do you find most interesting?

Have you been involved with a mathematical research project?

(9) How do you rate your personal communication skills? Are you comfortable talking with people that you don't already know? Do you feel confident that you could help a teenager work through a personal crisis? Are you eager to give an impromptu math lecture to a handful of interested students in the dormitory?

(10) Do you have some strong interests or hobbies outside of academic work?

(11) Attach a PDF containing an informal copy of your college transcripts, stating courses taken and grades earned.

Citizenship Notes.

Applicants to Ross/USA who are not US citizens: To earn a salary you need an appropriate visa. If you attend a US college, you may apply for an "OPT" or "CPT" for employment authorization. Visas are much more difficult to obtain if you are not a US citizen and do not attend college in the USA. Contact us about options.

Applicants to Ross/Asia who are not Chinese citizens:

Ross staff members will help you obtain the visa needed to enter China.