Dear teachers and administrators,

Are you interested in exploring how to bring computer science and programming into your school or classroom? Please read below for details on a Google-supported workshop that we are offering **August 14-16** at Michigan Tech. The workshop is a starting point to join a community of teachers for computing education across Michigan and the Upper Midwest region, in conjunction with faculty and students at Michigan Tech. Visit our [website](#) for a detailed agenda and instructions on how to apply. If you have questions about the workshop, please contact Prof. Linda Ott at [linda@mtu.edu](mailto:linda@mtu.edu).

**New for 2017**

- **School administrators and teachers session**, Tuesday morning (August 15). This session will provide administrators and teachers with an opportunity to get a broader understanding of the value of computer science education for students, the need for computer scientists in industry, and ways to introduce computer science at the K-12 level.

- **K-8 and High School tracks**. The K-8 track will focus on coding in Scratch, while the High School track will use Java. Both tracks will expose teachers to code design principles and application to “big data” visualization problems.

**Overview**

As computer technology becomes an ever more powerful and pervasive factor in our world, students need instruction in the creative problem solving skills that are the basis of computer science. Software design and programming skills, along with an understanding of the principles of computer systems and applications, are tremendously valuable in a wide range of future careers, and the problem solving process of [computational thinking](http://example.com/) can be used to enrich a wide range of K-12 courses. New tools and teaching materials make it possible to bring the creative spirit of computing into K-12 classrooms.

From a teacher's perspective, however, bringing computer science into the classroom can seem intimidating. We want to help teachers develop confidence in their own computer science literacy and help them craft a computing curriculum that meets their teaching missions. As faculty members of the Computer Science Department at Michigan Tech, we are keenly aware of the need to get young people interested and engaged in creative
computing, and we have developed programs at Michigan Tech and in the local community to further this goal.

Our workshop, supported through a Google CS4HS (Computer Science for High Schools) grant, aims to expose teachers to exciting new ways to bring computer science into schools. Allied with the workshop is a community of practice providing long-term support and training for teachers with little or no computer science background.

**Activities**

- **Instruct teachers with a basic level understanding of Computer Science Principles.** At the workshop, we will expose teachers with little or no CS experience to course materials targeted for a K-8 or High School audience. We aim to give them the confidence to take on this material in their own courses. The theme this year is “Big Data”; we will show how even large sets of real-world data (about the environment, human behavior, etc.) can be harnessed and manipulated easily through code.

- **Help teachers integrate programming into new and existing courses.** As computing has moved into the forefront of a wide variety of fields, an interesting emergent strategy is to integrate computer science into more traditional math and science courses. At the workshop, we will collaborate with teachers to determine where and how aspects of CS can be integrated into their courses.

- **Disseminate our K-12 computer programming course materials developed at Michigan Tech.** Our curriculum takes students through a variety of programming languages and environments and exposes them to a breadth of application areas. Beyond building “something that works”, we consider principles of good design and tradeoffs between different implementations.

- **Provide tools for increasing interest in computing among young women.** As a “Pacesetter” participant in NCWIT (National Center for Women & Information Technology), we are striving to increase the participation of women enrolling in undergraduate computer science degree programs. Towards this goal we will provide teachers with a better understanding of the breadth of careers available to students who major in computing, and we will encourage teachers and students to tap into the NCWIT network.
Support for Teachers

- Accommodation at Magnusson Franklin Square Inn, Houghton MI (for teachers from out of the area)
- Lunch provided during the workshop
- Stipend to assist with travel and other expenses
- 1 year assistance in course development from a Michigan Tech Computer Science graduate student

We hope you will consider joining us. Feel free to email Linda (linda@mtu.edu) with any questions.

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