

Advising Workshops

Harvey Mudd College Orientation

Pokerfest

Anybody want to learn how to play poker? We will not discuss science nor will I teach you how to count cards. The point of this workshop is simply to have fun and play cards without losing any money. I will provide chips, cards, and instruction to some of the more popular games (Draw/Stud games, Texas Hold'em, Acey Ducey, follow the Queen, Black Jack, Baseball, Pai Gow etc.). This workshop is for novice poker players only.

Exploring the Chocolate Chip Cookie

Chewy, crunchy, cakey, crisp. The chocolate chip cookie comes in many shapes, tastes and textures. Have you ever wondered how to recreate these difference styles? In this workshop we will investigate what gives a chocolate chip cookie its character. In the style of Cook's Illustrated, we will make a number of different chocolate chip cookie recipes to explore how different ingredients, baking temperatures, and mixing methods affect each cookie's outcome. No baking experience required. You just have to be willing to follow a recipe... and taste the outcome.

Introduction to the Balinese Gamelan

The gamelan is a dynamic and lively orchestra of bronze instruments from the island of Bali, Indonesia. The music is characterized by intricate rhythms, interlocking parts, and sudden turns of tempo that can be both thrilling and startling to Western ears. In this workshop, we will have a hands-on session with the gamelan owned by Pomona College, and will even learn a short piece. We will also listen to recordings and discuss how the gamelan fits into the larger society of Bali and what music means in the lives of people. Though no musical background or ability to read notation is require, musicians may find it an experience that challenges their abilities in new ways.

Theatre

We will attend at least one show (and hopefully more) among the outstanding professional and semi-professional theatres in the Los Angeles

area. Perhaps a musical by Stephen Sondheim, or a play by Peter Shaffer?

Mission Statement: Human Science and Responsible Engineering

As *the* "liberal arts college of college of science and engineering" Harvey Mudd has, for the past fifty years, worked under the charge to "educate engineers, scientists, and mathematicians well versed in all these areas and in the humanities and social sciences so that they may assume leadership in their fields with a clear understanding of the impact of their work on society." You come to the college excited about this mission, but it may also sound a little stale to you. So in this workshop we will turn the college's mission into an adventure. What does it mean? Where does it come from? Why might we care about it? How do we implement it? And, most important, how do you imagine you will want to work with it in the next four years?

In preparation for the workshop, I will ask you to read up a bit on the mission and its origin; I will send you a few relevant texts. During the workshop we will discuss whether and how the mission applies to your lives, today. I will then send you out to do a brief interview with one or two members of the Harvey Mudd community, to hear what they think of the mission and of the ways in which the school implements it. When we reconvene you'll have a chance to share what you have learned with each other.

Monopoly 102

Lizzie Magie invented Monopoly in 1904 as a vehicle for encouraging tax reform. Whether or nother broader purposes were served, Monopoly has enjoyed 102 years of popularity as a board game; we will continue this tradition with our own friendly, afternoon game(s).

Another, much younger, tradition we will seek to continue is Harvey Mudd's "duct tape challenge." The results of the first challenge are at www.cs.hmc.edu/~dodds/ducttape. We'll design a new one and encourage other advising groups to join us as well.

The End of Oil

By some estimates, peak oil recovery will occur in 2015. At our current rate of consumption, it is possible that oil shortages may cause significant shifts in geopolitical strategies around the world. A ***strenuous walk*** in a wilderness park will be the stage for discussions on oil, and the impact on global issues including US policies toward foreign nations with energy reserves or resources that can fuel a hydrocarbon based economy.

"How to Be Untruthful Without Ever Telling a Lie: The Media, Politics, and Life"

A look at the way the truth is shaded in order to create an illusion that is contrary to fact. You will each offer up an example of what, in your experience, you feel is the most egregious abuse and misleading use of the truth.

Observing the Sun

What star is closest to the Earth? If you know something about astronomy, you might be tempted to answer Proxima Centauri, but of course the correct answer is the Sun. Though we do not usually think of the Sun as one of the stars, it is actually an unremarkable garden-variety star with very typical mass, temperature and chemical composition. Despite its mediocrity, the Sun is very special to us, since it is the main source of light and heat necessary for life on Earth. Moreover, precisely because of its mediocrity and closeness, astronomers study the Sun extensively -- the knowledge gained from it can be used to understand the behavior of vast numbers of distant stars. In our workshop we will use several instruments to study the Sun. We will be able to measure its size, study the appearance of sunspots and solar prominences and examine the solar spectrum to identify chemical elements in the atmosphere of the Sun.

How Do We Make Decisions?

Some decisions are simple and the right choice is obvious. Some seem hopelessly complex and whichever choice we make seems to be less than optimal. Are there ways to think about making decisions that help us make the best possible decision, no matter how complex the problem? We'll do some reading on this topic and then have fun applying these ideas to (non-threatening) but hard problems.

Building a Kitchen Garden

From the inner city to the countryside, kitchen

gardens have become very popular. If thoughtfully planned, small plots planted with vegetables and herbs can be productive year-round in Southern California. But while the desert climate is excellent in many ways for gardening, it also presents certain problems for the gardener (most importantly, the responsible use of water). In this workshop, we will build on the designs of two earlier advising groups to create an environmentally sensitive kitchen garden, considering as we do so methods of watering, the impact of fertilizers on surrounding soil, the problems posed by particular insects and diseases, and so on. It will then be the responsibility of the group to enjoy the produce of the garden throughout the year!

Medical Imaging

Computer-aided tomography (CAT scans), ultrasound (US), positron-emission tomography (PET), and most recently magnetic resonance imaging (MRI) have made enormous improvements in the effectiveness of health care over the last few decades. In just the last decade, new imaging techniques using near-infrared light have been developed that hold great promise for minimally invasive diagnostics and therapy. Are we headed for a Star Trek society in which Dr. "Bones" McCoy waves his medical wand over the ailing patient and generates a computerized diagnosis of the patient's ills? Or are there issues with our society's priorities or insurmountable technical difficulties that will prevent us from achieving effective, reasonably-priced health care for all citizens?

In this workshop we will strive for an overview of health care in the United States and the world, and then examine some of the non-invasive imaging techniques that have proven effective and some new techniques that seem promising. Most critics believe that world-class health care in the U.S. requires political, social, and economic support from our society. Of course, some brilliant technical ideas for low cost but highly effective imaging techniques would surely help!

Making Science Fun in the Elementary School Classroom

An unfortunate consequence of the increased (and needed) emphasis on reading, writing, and mathematics in many elementary school classrooms is that the amount of time devoted to science education has dwindled. Young students, when they are the most curious and receptive, are not being involved in the excitement of science in the world around them. Participants in

this workshop will design a short, hands-on science lesson to be used in first-grade classrooms. The topic(s) will be chosen by the workshop participants from the Science Content Standards for California Public Schools. Participants will develop and practice an interactive science demo for the elementary students and will prepare lesson plans to be used by non-scientifically trained teachers. Later in the semester, there will be an (optional) opportunity to assist in the delivery of the designed lesson.

The Saga of Arturo Bandini

John Fante is one of the great unheralded voices of American fiction. In 1930, at the age of 21, he escaped his suffocating home in Colorado for a Depression-era Los Angeles with the impassioned desire to write novels. His writing is powerful and original, both economic and raw yet piercing and honest, with an emotional urgency.

In this workshop we will explore Fante's loosely autobiographical tetralogy of Arturo Bandini – a tragic-comedy love story which explores the struggles and challenges of an aspiring rash young Italian American with a runaway imagination and burning desire to be a great author.

In addition, this advising group will participate in Harvey Mudd's annual duct-tape design competition. More details will be available when you arrive at Mudd.

"Los Angeles, give me some of you! Los Angeles come to me the way I came to you, my feet over your streets, your pretty town I loved you so much, you sad flower in the sand, you pretty town." – *Ask the Dust* (1939)

Archery and Ice Cream: An Exploration of Zen

Zen in the Art of Archery by Eugen Herrigel is one of my favorite books. It is short, less than 100 pages, and you can read it in an hour, but you'll continue thinking about it and fully absorbing it for much longer than that. What does archery have to do with Zen Buddhism? Are the principles of Zen that are outlined in the book relevant to your life? Are you interested in learning about other ways of thinking about the world? What is the relationship between eastern and western thought? We will discuss this book and these issues. We will also eat ice cream. We will continue our exploration of different

modes of thought during the academic year through reading several other short books or book chapters (such as the Tao of Physics, Zen and the art of Motorcycle Maintenance, and Siddhartha). Discussions will take place over a meal off campus somewhere, to give you a chance to take a break from academics every once and a while!

La Vie Française

Est-ce que vous aimez la culture française et la cuisine française ? Nous allons voir des films françaises (avec sous-titres en anglais) et discuter les différences culturels entre la France et les États-Unis. En plus, nous allons découvrir la gourmandise avec des diners (et peut-être des pauses cafés) français.

Il ne faut pas parler couramment le français – vous devez avoir qu'un niveau très basse (seulement deux ou trois années au lycée). Venez nombreux!

(English summary: The group will watch French movies, discuss the cultural differences between France and the US and eat French food!)

From Claremont to Little Tokyo

We will ride the commuter train from Claremont to downtown LA. Debarking at LA's beautiful and historical Union Station, we will take a short walk to the "Little Tokyo" neighborhood where we will visit the Japanese American National Museum and enjoy a meal at a nearby Japanese restaurant. The Japanese American Museum explores the history and experiences of Americans of Japanese descent. More generally, it explores the "meaning and value of ethnicity in our country." This will be a fun, interesting, and relaxing afternoon!

Karaoke

Do you sing in the shower, in the car, in the kitchen, ...? Do your friends ask you to stop? In this workshop, you'll unleash your inner rockstar in front of a small encouraging audience of other undeterred singers! From Frank Sinatra to Britney Spears, solos to duets, on-key to off-key, anything goes in karaoke. We'll start with a brief discussion of the history of karaoke (to warm up our vocal chords), and then we'll break out the machine for rousing renditions of our favorite songs. No singing ability required ("less is more"), just a good attitude!

Got Community?

We will share our time and talents with local non-profit organizations as a means of getting to know each other while also exploring the communities beyond campus. We will participate in several "plunge" service projects that, in spite of their minimal time commitment (typically 3 hours or less), will result in tangible outcomes. By working together to address community needs, we will glimpse just a few of the many opportunities the surrounding communities offer HMC students.

A Borgesian Perspective

Recognized as one of the foremost writers of the 20th century, the Argentine author, poet, and philosopher, Jorge Luis Borges (1899-1986) was known for his ability to combine seamlessly the ordinary and the fantastical. In this workshop, we will explore some of his short stories, listen to excerpts from some of his lectures, and watch part of a documentary that features an extensive interview with Borges. In addition, early in the fall semester, the participants in the workshop will attend a play (to be decided by the group) somewhere in the Los Angeles area.

Are We Out of Gas?

A typical adult can perform about 3-5 MJ of useful work in a day, or about 1.5 GJ per year. A typical person in the United States uses 330 GJ per year, which means that you and I are served by 200-300 "energy slaves"! Each American is responsible for burning the equivalent of 2250 gallons of oil, or 12.5 tons of coal, to support our modern style of life. However, supplies of oil are not infinite and many oil fields outside the Middle East are well past their production peaks. Furthermore, there is a global scientific consensus that increased carbon emissions are partially responsible for a warming trend in the global climate system. Even if oil supplies are not evaporating, can we afford to continue releasing increasing amounts of carbon dioxide into the atmosphere?

Some who study the situation offer dire warnings about the dangerous experiment we are running with the planet. Caltech physicist David Goodstein warns, "...by the time we have burned up all that fuel, we may well have rendered the planet unfit for human life. Even if human life does go on, civilization as we know it will not survive, unless we can find a way to live without fossil fuels."

Are we doomed? I will present some recent information on energy production and consumption trends, we'll measure just how much electricity various appliances in your dorm rooms consume, and we'll discuss how energy issues will shape our economic, political, and environmental future.

Using Computer Graphics to Teach a Preschooler About Black Holes...

We'll talk about new technology and techniques in computer graphics and computer gaming for simulating physical systems - in particular complex ones that arise in subjects like string theory. We'll watch some cool animations on special and general relativity as well as quantum gravity that make such abstract topics accessible to (almost) every age. I may even demonstrate my advanced skills by beating you in a game or two of Civ4...

Design à la Mudd

In this workshop we will personalize your living space by making a pillow in Harvey Mudd colors. We will provide a variety of black, white and gold fabric for you to choose from. You can decide on the size and shape pillow to make. No previous sewing experience is required. Guaranteed to become family heirlooms.

Weight Training for Dummies

College is the perfect time to start a weight-training regimen if you haven't done it before. You'll look better, feel better, and even think better when you are of sound body as well as mind. If you are interested in learning the basics of weight training, including proper form, physical principles, usage of various kinds of machines and free weights, and have never or rarely done weight-training before, then this workshop is for you!

Songwriting: Expressing your Inner Voice

You have a song in your heart, waiting to be sung. But first it has to be written! In this workshop, we'll discuss the art and craft of songwriting, share songs we enjoy, and even have some fun doing some writing. Both new and experienced songwriters are welcome.

Chai and China Painting: Chilling Out in Claremont

It's possible to spend four years at HMC without venturing south of Twelfth Street. Our workshop

will make a pitch for Claremont as a locus of relaxation. We'll stroll to the village, explore the best spots for an iced chai or latte and release our inner artists at Becca's *Color Your Own Ceramics*. Perhaps an ice cream cone from Bert and Rocky's to cushion the walk home? A foray into the esoterica of Rhino Records or Video Paradiso? The possibilities are (almost) endless.

described at http://chaos.ph.utexas.edu/research/vibrated_core_starch.htm (You really need to go watch the movies there.) You don't have to be interested in majoring in math or physics to participate in this group.

The Human Face of Immigration: Exploring the Film *Alambrista*

This workshop explores Robert Young's critically acclaimed 1977 film. *Alambrista* ("Fence-Jumper"), the poignant and touching story of a Mexican immigrant who faces harsh realities as well as signs of hope on both sides of the U.S.-Mexico border. Prior to our discussion, workshop participants will view the film as well as look at one or two related essays or interviews of their choosing, all of which will be provided beforehand. Come ready to discuss!

Carcassonne: A "Medieval" Board Game

In this workshop we will play a popular German game inspired by the medieval walled city of Carcassonne in southern France. Relying on both strategy and luck, players take turns drawing tiles from a bag and adding them to a growing landscape. They may then choose to place a knight in a city, a thief on a road, a farmer in a field, or a monk in a monastery. The game ends when every tile has been placed. Some players aim to score the most points, while others savor memorable plays or admire the ever-changing pattern of the board. No experience nor knowledge of medieval history is necessary.

Art in Claremont and Southern California

Like art? During this short "workshop" time we'll check out some of the places to view art in Claremont, and share our stories about favorite artists and museums. Later in the year, we'll take one or more field trips to farther afield art spots in Southern California. This is a perfect group for those of you who can't get enough of the Getty/LACMA/MOCA– or those of you who haven't yet experienced LA's finest!

Building Math and Physics Demos

In this workshop, we will be building mathematics and physics demonstrations for pedagogical purposes and for fun. One experiment that we will try to recreate is the one