

TOP STORIES IN
Careers

5 of 12
Age Control
Forced Exit



6 of 12
Kruegar on
Concerns About
Manufacturing Jobs



7 of 12
Welch to
Transfer Out of
Chancellor



8 of 12
How I Found My
First Big Job

EDUCATION | NOVEMBER 9, 2011

Generation Jobless: Students Pick Easier Majors Despite Less Pay

Article

Video

Slideshow

Comments (346)

MORE IN EDUCATION »

Email Print Save



By JOE LIGHT And RACHEL EMMA SILVERMAN



Jeff Swensen for the Wall Street Journal

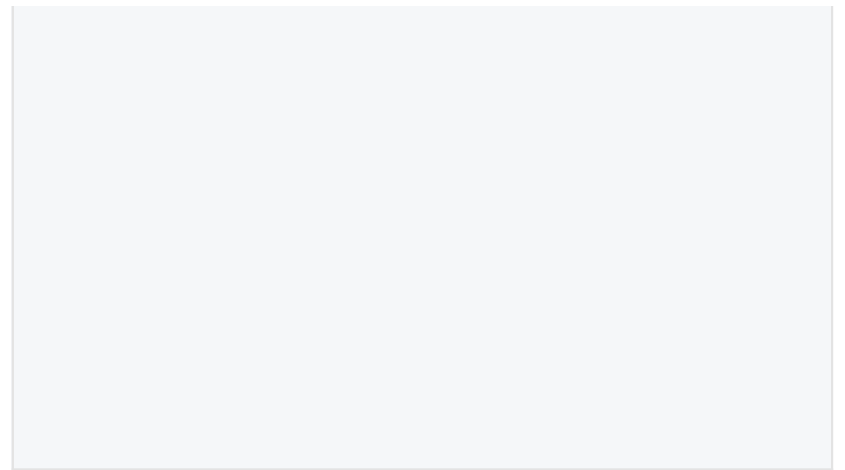
Biyan Zhou switched her major from electrical and computer engineering to a double major in psychology and policy management.

Biyan Zhou wanted to major in engineering. Her mother and her academic adviser also wanted her to major in it, given the apparent career opportunities for engineers in a tough job market.



For today's college graduates, the message is clear: If

But during her sophomore year at Carnegie Mellon University, Ms. Zhou switched her major from electrical and computer engineering to a double major in psychology and policy management. Workers who majored in psychology have median earnings that are \$38,000 below those of computer engineering majors,



Available to WSJ.com Subscribers



Key Obama Backer Off to Slow Start

Bill Burton left the White House with a goal of raising \$100 million for a pro-Obama fund-raising group, aiming to mimic the success of recent Republican efforts. So far, he's falling short.

Ford's New SUV Shows Global Strategy



Church Faces City in Zoning Battle



Merrill Bristles as BofA Toils On

you want a job, the best thing you can do is build a career in rigorous disciplines of science, technology, engineering and math, Joe Light reports on Markets Hub. Photo: AP.

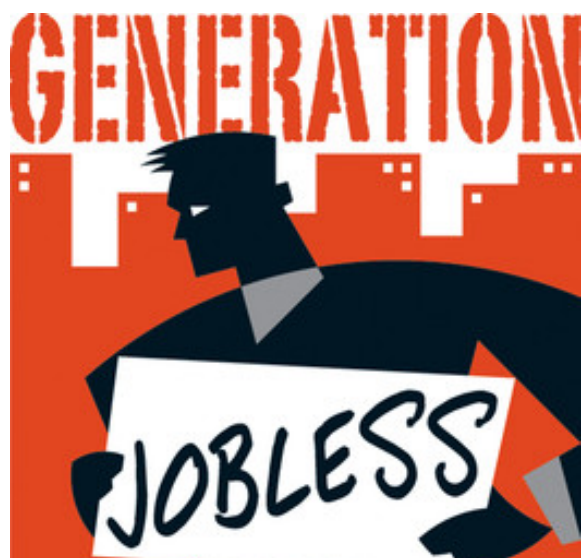
Ms. Zhou of her decision. She now plans to look for jobs in public relations or human resources.

About Generation Jobless

Americans 25 and under face one of the toughest job markets in modern history. This week, The Wall Street Journal explores their stories.

Also in the Series:

- [Help Wanted: Mechanics, Not Chefs](#)
- [Is an Ivy League Diploma Worth It?](#)
- [From Ivied Halls to Traveling Salesman](#)
- [Speeding Through College to Save Money](#)
- [Generation Jobless: Young Men Suffer Worst as Economy Staggers](#)
- [Among Minorities, a New Wave of 'Disconnected Youth'](#)
- [For Those Under 24, a Portrait in Crisis](#)



according to an analysis of U.S. Census data by Georgetown University.

"My ability level was just not there," says

Ms. Zhou's dilemma is one that educators, politicians and companies have been trying to solve for decades amid fears that U.S. science and technology training may be trailing other countries. The weak economy is putting those fears into deeper relief.

Time will tell if the poor job market persuaded more students to push into disciplines such as engineering and science. Although the number of college graduates increased about 29% between 2001 and 2009, the number graduating with engineering degrees only increased 19%, according to the most recent statistics from the U.S. Dept. of Education. The number with computer and information-sciences degrees decreased 14%. Since students typically set their majors during their sophomore year, the first class that chose their major in the midst of the recession graduated this year.

Research has shown that graduating with these majors provides a good foundation

Jobs & Career News

POWERED BY

FINS

Career News by Industry

FINANCE

- [La Vie En SocGen](#)
- [MF Global Continues to Spin](#)
- [MF Global Employees File Separate WARN Lawsuits](#)

TECHNOLOGY & IT

- [Apple Becomes a Little More Normal](#)
- [Wal-Mart Moms Won't Fuel Job Growth](#)
- [Video Games Aren't Easy, But They Sure Are Fun](#)

SALES & MARKETING

- [NBA Layoffs Rise to 300](#)
- [Newsweek Overhauls Management](#)

Now Hiring

[For Employers & Recruiters »](#)

- [Junior Web Developer - Cisco Partner - BT](#)
- [Email Marketing Designer - The Creative Group](#)
- [Programmer Analyst - Direct Hire FTE Position - Robert Half Technology](#)

[More finance jobs, IT jobs, sales jobs, marketing jobs on FINS.com »](#)

The Faces of Generation Jobless



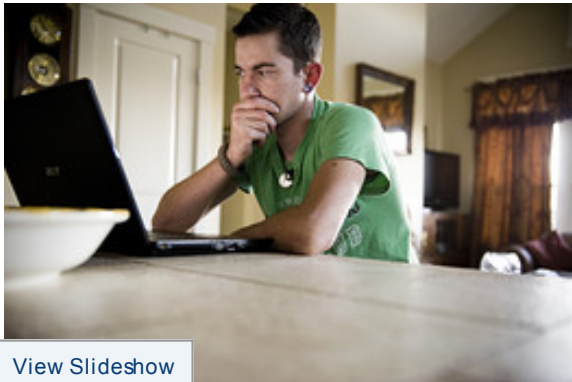
[View Slideshow](#)

Daymon Gardner for The Wall Street Journal

John Dodge is an insurance salesman with Aflac in Baton Rouge, La.

Young Men Feel Job-Market Pain

Cody Preston, 25, searches online for jobs at his parents' home in Milwaukie, Ore.



[View Slideshow](#)

Leah Nash for The Wall Street Journal

Some students, like Ms. Zhou, say their high schools didn't prepare them for the level of rigor in the introductory courses.

Overall, only 45% of 2011 U.S. high-school graduates who took the ACT test were

not just for so-called STEM jobs, or those in the science, technology, engineering, and math fields, but a whole range of industries where earnings expectations are high. Business, finance and consulting firms, as well as most health-care professions, are keen to hire those who bring quantitative skills and can help them stay competitive.

For 22-year-old Ms. Zhou, from Miami, the last straw was a project for one of her second-year courses that kept her and her partner in the lab well past midnight for several days. Their task was to program a soda machine. Though she and her partner managed to make it dispense the right items, they couldn't get it to give the correct change.

To avoid getting an "incomplete" for the course, Ms. Zhou withdrew before the lab ended. Since switching majors she has earned almost straight A's instead of the B's and C's she took home in engineering.

Students who drop out of science majors and professors who study the phenomenon say that introductory courses are often difficult and abstract.

Career Newsletters from FINS

- Finance Morning Coffee
- Technology Morning Coffee
- Sales & Marketing Morning Coffee

[SIGN UP on FINS](#)

Most Popular Video >



Walt Mossberg Reviews the Kindle Fire
3:49



What Your Steakhouse Won't Tell You
3:38



Cadillac Takes on BMW With New Models
4:27

More in Education

[Brightest Stall, Low Achievers Gain](#)

Most Popular >

- [Read](#)
- [Emailed](#)
- [Video](#)
- [Commented](#)

1. [Vertical Living in San Francisco](#)
2. [Kindle Fire: A Grown-Up E-Reader](#)
3. [New York Police Clear 'Occupy' Park](#)
4. [A Nazi Story That Still Surprises](#)
5. [Facebook Slammed by Porn Attack](#)

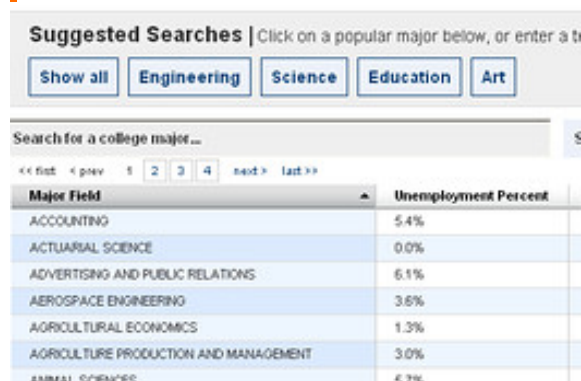
[Most Read Articles Feed](#)

prepared for college-level math and only 30% of ACT-tested high-school graduates were ready for college-level science, according to a 2011 report by ACT Inc.

"If you haven't been given the proper foundation early on, you fall farther and farther behind as the material gets more difficult. It's discouraging, demoralizing," says Claus von Zastrow, the chief operating officer and director of research at Change the Equation, a Washington, D.C., nonprofit group that seeks to improve science and math education. It has led professors to anticipate the high levels of attrition.

From College Major to Career

Here's a look at how various college majors fare in the job market, based on 2010 Census data.



Suggested Searches | Click on a popular major below, or enter a b

Show all Engineering Science Education Art

Search for a college major...

<< first < prev 1 2 3 4 next > last >>

Major Field	Unemployment Percent
ACCOUNTING	5.4%
ACTUARIAL SCIENCE	0.0%
ADVERTISING AND PUBLIC RELATIONS	6.1%
AEROSPACE ENGINEERING	3.6%
AGRICULTURAL ECONOMICS	1.3%
AGRICULTURE PRODUCTION AND MANAGEMENT	3.0%
ANIMAL SCIENCE	4.3%

[More photos and interactive graphics](#)

spent only about 12 to 13 hours a week studying, about half the time spent by students in 1960. They found that math and science—though not engineering—students study on average about three hours more per week than their non-science-major counterparts.

WSJ Careers on Facebook

[Weigh in: Why can't young adults find jobs?](#)

split its introductory computer-science class into three separate courses. One was

"I get direct emails from a handful of students who say, 'I struggled in this class. I realize that I'm not cut out to be a [computer science] major,' " says professor Adam Klivans, who teaches an introductory math and computer science class at the University of Texas, Austin.

Science classes may also require more time—something U.S. college students may not be willing to commit. In a recent study, sociologists Richard Arum of New York University and Josipa Roksa of the University of Virginia found that the average U.S. student in their sample

Educators have tried to tackle the attrition problem with new programs that they say make engineering more accessible. In 2003, Georgia Institute of Technology

geared toward computer science majors, another to engineering majors, and a third to liberal arts, architecture and management majors. The liberal arts course cut down on computer-science theory in favor of practical tasks like using programming to manipulate photographs, says computer science professor Mark Guzdial. Since the switch, about 85% of students pass, he says.

Meanwhile, only a third of science and engineering college graduates actually take jobs in science and tech fields, according to a 2007 study by Georgetown University professor B. Lindsay Lowell and Rutgers University professor Hal Salzman.

Journal Community »

That may partly be because the jobs don't pay enough to attract or retain top graduates. Science, technology,

engineering and math majors who stay in a related profession had average annual earnings of \$78,550 in 2009, but those who decided to go into managerial and professional positions made more than \$102,000, according to an analysis of U.S. Census data by the Georgetown University Center on Education and the Workforce.

"If you're a high math student in America, from a purely economic point of view, it's crazy to go into STEM," says Anthony Carnevale, director of the Georgetown center.

Some science and math graduates also say they would rather channel their analytical skills into fields that pay higher and seem less tedious. Charles Mokuolu, 23, graduated from Georgia Tech in 2010 with a civil-engineering degree, and now heads the finance club at Duke University's master of engineering management program. He recently secured a business-strategy job in the commercial leadership program of a large global manufacturing company.

After interning at an engineering firm, "I realized that although I did enjoy learning about all this cool stuff and doing math problems that no one else could solve, it's not something I wanted long term as a career," he says.

Write to Rachel Emma Silverman at rachel.silverman@wsj.com and Joe Light at Joe.Light@wsj.com

JOIN THE DISCUSSION
346 Comments, add yours »

MORE IN
Education »

 Email  Print  Order Reprints

Add a Comment

[View All Comments \(346\)](#)

JOURNAL COMMUNITY

[Community rules](#)

To add a comment please

[Log in](#)

or

[Create an Account](#)

Your real name is required
for commenting.

Track replies to my comment

CLEAR

POST



Login with Facebook

Job Search

POWERED BY **FINS.COM**

[Advanced Search](#)

SEARCH

- Finance Jobs
- Accounting jobs
- Technology Jobs
- Sales Jobs
- Marketing Jobs
- All jobs in last 7 days
- Stand out with FINS Resume Service »

UPLOAD YOUR RESUME

Editors' Picks



THE WALL STREET JOURNAL.

[BACK TO TOP](#) ▲

Customer Center:

- My Account
- My Subscriptions

Create an Account:

- Register for Limited Access
- Subscribe to WSJ.com
- Sign up for WSJ Professional

Help & Information Center:

- Help
- Contact Us
- Global Support
- New on WSJ.com
- Take a Tour
- Print Subscriber Services

About:

- News Licensing
- Reprints
- Advertising
- Classifieds
- Advertise Locally
- Conferences
- About Dow Jones
- Privacy Policy - UPDATED 10/18/2011
- Your Ad Choices
- Subscriber Agreement & Terms of Use - Updated
- Copyright Policy
- Jobs at WSJ.com

WSJ.com:

- Site Map
- Home
- World
- U.S.
- New York
- Business
- Markets
- Market Data
- Tech
- Personal Finance
- Life & Culture
- Opinion
- Autos
- Careers
- Real Estate
- Small Business
- Student Journal
- Corrections
- SafeHouse - Send Us Information

Tools & Formats:

- Today's Paper
- Video Center
- Graphics
- Columns
- Blogs
- Topics
- Guides
- Alerts
- Newletters
- Mobile
- Tablet Edition
- Podcasts
- RSS Feeds
- Journal Community
- WSJ on Twitter
- WSJ on Facebook
- WSJ on Foursquare
- My Journal
- Portfolio
- WSJ Digital Downloads

THE WALL STREET JOURNAL.

Digital Network

- WSJ.com
 - Marketwatch.com
 - Barrons.com
 - SmartMoney.com
 - AllThingsD.com
 - FINs: Finance, IT jobs, Sales jobs
 - BigCharts.com
 - Virtual Stock Exchange
 - WSJ Radio
 - Professor Journal
 - WSJ U.S. Edition
 - WSJ Asia Edition
 - WSJ Europe Edition
 - WSJ India Page
- Foreign Language Editions:
- WSJ Chinese
 - WSJ Japanese
 - WSJ Portuguese
 - WSJ Spanish

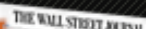


Copyright ©2014 Dow Jones & Company, Inc. All Rights Reserved.

Subscribe and Get 2 Weeks FREE! [Learn More »](#)

[Subscribe Now](#)

▼ SUBSCRIBE AND GET TWO WEEKS FREE!



Close X