

# Communicator

An Honor Society in Workforce Development

VOLUME 10, ISSUE 2

AUGUST 2008



## Iota Lambda Sigma Will Have 2008 Annual Meeting in Charlotte, NC on Dec 5th



*Career and Technical Education — Preparing the Workforce of the Future*

The Executive Council announced that the 2008 Annual Grand Chapter Meeting will be held in Charlotte, NC on December 5, 2008. The meeting will be held in conjunction with the 2008 ACTE Convention and Career Tech Expo.

This year's ACTE theme is "Racing Toward Charlotte" and in keeping with a shortened meeting period like last year, will be conducted December 4-6, 2008 at the Charlotte Convention Center. Plans call for pre-convention workshops, tours,

and partners and partner sessions. Visit the ACTE web page at <http://www.acteonline.org/convention/> for the latest information on the Conference.

Iota Lambda Sigma plans include an ILS Training Meeting in the morning and the National advisory Council Meeting in the afternoon of December 4th. The Grand Chapter Annual Meeting will be held at 10:00—11:30 AM on December 5th. The meeting locations have not been announced.

Chapters are encouraged to send members to the meeting. The Executive Council has announced that it will provide \$100 toward the travel expenses to one member from each chapter. That member will be required to attend the three scheduled Iota Lambda Sigma meetings in order to receive the \$100. Chapter secretaries must fill out the Leadership Training Registration Form 2008 listed on the Grand Chapter Forms page of the ILS Web page: [www.iotalambdasigma.com/](http://www.iotalambdasigma.com/) in order to qualify for the money.



# Iota Lambda Sigma Information

## Chapter Annual Reports Due by October 1

Chapter secretaries are reminded that the Chapter Annual Report is due no later than October 1. This document must be received before the chapter's dues are remitted to the chapter. It also includes the representatives to the Executive Council meeting and the Grand Chapter Annual Meetings.

Annual Report Forms are located on the Forms page of the Iota Lambda Sigma web site:

<http://www.lions.odu.edu/~dnethert/ils/forms.htm>



## Emeritus Membership

Any member reaching the age of 65, or is retired due to disability prior to age 65, may apply to the Grand Chapter for Emeritus Membership. The member must have been a current dues paying member for a minimum of five years preceding the application.

A member retired due to a disability must provide proof that the disability terminates both present and future employment. Emeritus membership retains all rights and privileges of regular membership with no further assessments.

Applications may be made by filling out an Emeritus Membership Application Form is to be filled out when applying for Emeritus membership status. Send in the completed form to the Grand Chapter Executive Secretary-Treasurer. The member must be a member in good standing at the time of filing the application.

Emeritus Membership Application Form are located on the Forms page of the Iota Lambda Sigma web site:

<http://www.lions.odu.edu/~dnethert/ils/forms.htm>

## Leadership Training Registration Due by October 1

Each Chapter is eligible to send one member to the *ILS Leadership Training* session that will be held in Charlotte, NC tentatively on Dec 4, 2008 at 11:00 am to 12:00 pm. The recipient must attend all three of the following sessions: the ILS Training Session, National Advisory Council meeting and the Annual Grand Chapter meeting. The recipient must be an officer and the recipient may only receive the stipend two times. Reimbursement will be \$100.00.

Registration forms for this training session are located on the Forms page of the Iota Lambda Sigma web site:

<http://www.lions.odu.edu/~dnethert/ils/forms.htm>

*Epsilon (Alabama Field) Chapter Recognized as ILS Chapter of the Year at Grand Chapter Meeting in December 2007*

## Graduate Scholarship Guidelines: Application Due August 1

Iota Lambda Sigma encourages its membership to pursue advanced studies for the purpose of improving themselves professionally. The Grand Chapter awards one \$500.00 scholarship annually for one year of full-time or part-time enrollment to promote study in the field of workforce development and career and technical education. The applicant must pursue advanced professional study in a related workforce or career and technical education curriculum at the graduate level. The Grand Chapter's guidelines to be used in making the selection for Scholarship Recipients are as follows:

Only deserving applicants will be considered. The applicant must be a member in good standing of a chapter of Iota Lambda Sigma and complete and submit the Scholarship Application by August 1. Forward the application materials to the Grand Chapter Executive Secretary by August 1.

The Scholarship Application Form is located on the Forms page of the Iota Lambda Sigma web site:

<http://www.lions.odu.edu/~dnethert/ils/forms.htm>

**The First Issue of Iota Lambda Sigma's *Journal for Workforce Education* will published** in the fall. Approved by the Executive Council about five years ago, this journal will finally begin to be published twice a year. Those interested in publishing scholarly work should follow the editorial policy outlined below.. This journal will be published on line.



## Iota Lambda Sigma Journal for Workforce Education

### EDITORIAL POLICY

The *Iota Lambda Sigma Journal for Workforce Education* (JWEd) publishes refereed articles that examine research and research-related topics in human resource development, vocational education, career and technical education, preparation for work, and the workplace. The JWEd Editorial Board is committed to publishing scholarly work that represents a variety of conceptual and methodological bases. Submission of manuscripts representing one of the following styles is encouraged: (a) empirically-based manuscripts that report results of original research, either quantitative or qualitative, (b) reviews or synthesis of empirical or theoretical literature, (c) editorials and essays derived from original historical or philosophical research, (d) reviews of recently published books, and (e) rejoinders to articles recently published in the JWEd. Page costs are not assessed. However, if a manuscript is accepted, authors will be asked either to supply camera-ready tables and figures, or pay for the costs incurred in preparing complex tables and figures for publication.

**MANUSCRIPT PREPARATION.** One (1) electronic copy (on floppy disk, CD, or email) of the manuscript should be submitted to the Editor. The electronic version must be in MS Word version 6 or higher. Manuscripts typically range in length from 20 to 30 double-spaced pages including references, tables, and figures (12,000-36,000 characters in length with 36,000 characters as an absolute maximum). Book reviews, editorials, and rejoinders should be approximately 4-8 pages (approximately 6,000 to 12,000 characters). Text, references, and tables must be prepared according to the guidelines detailed in the *Publication Manual of the American Psychological Association* (latest edition). The title page should include the title of the article, and the name, affiliation, mailing address, e-mail address, and telephone number for each author. Each manuscript must be accompanied by an abstract of no more than 150 words. The receipt of all manuscripts will be acknowledged within one week of receipt. Manuscripts are subjected to a double-blind refereed review process. Typically, three individuals, including the Editor, review each manuscript. Reviewers' comments and a letter indicating the publication decision will be sent to the primary author approximately 3-4 months following receipt. Manuscripts accepted for publication are usually published within one year of formal acceptance. Since the articles will be published on line, there will be no copies furnished to authors.

Send manuscripts to:

**Dave Netherton, Editor, JWEd**  
Department of Occupational and Technical Studies, ED 228  
Old Dominion University  
Norfolk, VA 23529

## Accountability a Big Part of the New Perkins Law

The Carl D. Perkins Career and Technical Education Improvement Act of 2006 makes several key changes regarding accountability and program improvement.

**State and local accountability:** Under the 1998 law, the major provisions of the Perkins accountability system applied only to states. The new law extends the accountability system to local programs as well.

**Performance Indicators:** Under the new law, states and local programs will be required to report on *separate* core performance indicators for secondary and postsecondary students. Measures for each indicator must be valid and reliable.

### Secondary Student Indicators

- 1) Student attainment of challenging academic content standards and student academic achievement standards, as adopted by a State under NCLB, and measured by the State academic assessments used for NCLB.
- 2) Student attainment of career and technical skill proficiencies, including student achievement on technical assessments, that are aligned with industry recognized standards, if available and appropriate.
- 3) Student rates of attainment of each of the following: (1) a secondary school diploma; (2) a General Education Development (GED) credential, or other State-recognized equivalent including recognized alternative standards for individuals with disabilities; (3) a proficiency credential, certificate, or degree, in conjunction with a secondary school diploma (if such credential, certificate, or degree is offered by the State in conjunction with a secondary school diploma).
- 4) Student graduation rates (as defined by NCLB).
- 5) Student placement in postsecondary education or advanced training, in military service, or in employment.
- 6) Student participation in and completion of career and technical education programs that lead to non-traditional fields.

### Postsecondary Student Indicators

- 1) Student attainment of challenging career and technical skill proficiencies, including student achievement on technical assessments, that are aligned with industry-recognized standards, if available and appropriate.
- 2) Student attainment of an industry-recognized credential, a certificate, or a degree.
- 3) Student retention in postsecondary education or transfer to a baccalaureate degree program.
- 4) Student placement in military service or apprenticeship programs or placement or retention in em-

ployment, including placement in high skill, high wage, or high demand occupations or professions.

- 5) Student participation in, and completion of, career and technical education programs that lead to employment in non-traditional fields.

**Performance levels:** Plans submitted to the Department of Education by States must at minimum include objective, quantifiable, and measurable target performance levels for each of the core performance indicators for secondary and postsecondary students. The performance levels established in State plans must demonstrate continual progress toward improving the performance of career and technical education students. The law requires the Secretary of Education and States to negotiate performance measures for the first two program years covered by the State plan and reach agreement. These negotiations would be repeated in subsequent years, prior to the third and fifth program years covered by the State plan.

Local programs must either accept the state adjusted levels of performance as the local levels of performance or negotiate with the State to reach agreement on new local adjusted levels of performance. Local performance levels must also be objective, quantifiable, and measurable. Local programs and States must reach agreement on local adjusted levels of performance for the first two program years covered by the local plan, and the subsequent third and fifth years.

If unanticipated circumstances arise in a State or local area resulting in a significant change that would cause a State to not meet the agreed upon performance levels, the State or local area may request that the Secretary of Education or State revise its adjusted levels of performance.

**Disaggregation of performance data:** The 2006 Act requires State and local programs to annually report on the performance of CTE students. Data must be disaggregated by special populations (as defined in the Act) and subgroups as defined under the No Child Left Behind Act (NCLB). Unless groups are too small to preserve student anonymity, disparities between subgroups and all other students must be identified and quantified. Reports must also include quantifiable descriptions of the progress being made under each subcategory of students being served. The report must be made available in a variety of formats, including electronically.

## U.S. Department of Education Approves Perkins State Plans

After an in depth review and negotiation process, the Department of Education's Office of Vocational and Adult Education (OVAE) has approved the five-year Perkins state plans of all 50 states, the District of Columbia, Puerto Rico and Guam! While a few of these grants were approved with conditions, the approval allowed for the first installment of Perkins funding for Fiscal Year (FY) 2008 to be distributed to states on July 1. States will in turn distribute funding to local school districts and postsecondary institutions as described in the Perkins Act and in each state plan.

The approval of state plans is an important step in the implementation of the 2006 Perkins Act and allows states to begin using Perkins resources to implement new programs and projects that they have included in their plans. However, before distributing the second installment of FY 2008 funds on October 1, OVAE will complete a more thorough review of the local funding application that each state is using to award local Perkins funds. This review will ensure that the application meets the requirements laid out in the 2006 Perkins Act.

Many draft state plans are available on their respective state agency Web sites, and ACTE will be including them on its Perkins Implementation Web page once final versions are released.

On May 20, the federal Office of Vocational and Adult Education announced the availability of grant funding to support state efforts to offer rigorous CTE programs of study under the new Perkins law and to institutionalize those CTE programs of study through statewide or multi-state articulation agreements. OVAE will award up to six grants competitively, ranging from \$120,000 - \$130,000 for a 24-month period. Application information is available through the federal register. The deadline for states to transmit their applications is July 7, 2008.

In other Perkins reauthorization news, the Office of Management and Budget has just released the 2008 Compliance Supplement, known as OMB Circular A-133. This document contains information necessary to ensure compliance with all applicable federal laws and regulations and assists in the preparation for and performance of federal audits of state and local entities. Auditors will consider the supplement and other referenced laws, regulations, and OMB Circulars in determining the compliance requirements for programs under review.



## ACTE Issue Briefs

ACTE has announced a new Issue Brief entitled ***CTE's Role in Workforce Readiness Credentials***

This issue brief explores the important role that career and technical education plays in the continued expansion and value of workforce readiness credentials. CTE programs contribute to the growth of these credentials by helping students apply academic and employability skills, providing opportunities for preparation and assessment, and connecting with business and industry to increase employer support. You can download copies of Issue Briefs from this web site:

[http://www.acteonline.org/resource\\_center/issue\\_briefs.cfm](http://www.acteonline.org/resource_center/issue_briefs.cfm)

***The Communicator*** is an official publication of Iota Lambda Sigma, an Honor Society in Workforce Development. The National Office address is:

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## German Government to Address Skilled Labor Shortage.

The [Financial Times](#) (7/15, Benoit) reports that Germany is affected by a "rapidly worsening skills shortage,...one that the government is responding to with a package of measures due to go before the cabinet" Tuesday. According to the Financial Times, the cabinet "is expected to endorse a series of measures to open up Germany's closed labor market to foreign graduates in an attempt to tackle" the skills shortage. "Economists and business representatives have welcomed the move, even though they see it as a timid step that will leave many hurdles in place for foreign graduates eager to settle in Germany." However, "[t]rade unionists, in particular, see" the measures "as further steps towards the creation of a global market for labor, and therefore a threat to the country's comparatively high wages." The Financial Times points out that "[e]ngineers, in particular, are in increasingly short supply and finding them has become" difficult. While "the number of university graduates has increased from 214,000 a year to 254,000 since 1995, engineering graduates have fallen by 10,000 to 39,000."

"The trainee shortage is especially acute in Germany's eastern states," according to [Deutsche Welle](#) (7/14). Hanns-Eberhard Schleyer, secretary general of the Central Association of German Skilled Workers, "predicts that in these states, the number of applicants for trainee positions will have fallen 50 percent by 2011 -- reflecting a marked drop in the number of qualified school-leavers in recent years." Deutsche Welle explained that "[t]his explains why so many companies are having problems meeting their skilled labor needs with young workers." Schleyer argued, "Our companies need new blood, they need skilled labor. ... In Germany it is becoming increasingly hard to find qualified young people to train."

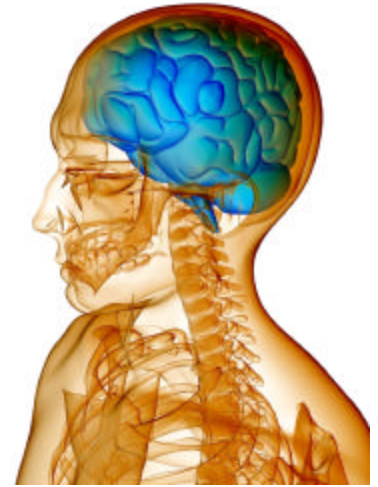


## Working with hands helps develop kids' brains

Reuters. updated 3:23 p.m. ET, Mon., July. 14, 2008

British children's brain development is being threatened by their failure to work with their hands in school and at home.

With woodwork, metalwork, craft, music or car mechanic classes dropped by many schools and children wanting to play computer games at home, the UK is becoming a "software instead of a screwdriver society," said the report, commissioned by the Ruskin Mill Educational Trust.



"Working with one's own hands in a real-world 3-D environment is imperative for full cognitive and intellectual development," said the report's author Dr. Aric Sigman.

"Research is showing that increasing time spent in the virtual world of computers is displacing hands-on play and hands-on learning.

"That allows young people to experience how the world works in practice, to gain an understanding of materials and processes and to make informed judgments about abstract concepts."

The report cited examples of 11-year-olds with deficits in certain areas of their cognitive development and a decline in the ability of young engineers and apprentices to conceptualize straightforward mechanical problems.

"The findings of this report clearly point to strengthening the role of '3-D' learning and crafts in educational policy-making today," said Sigman.

"The implications for the economy are significant and will actually improve the workforce's ability to use computers in research, design and development.

"But parents too have a responsibility to ensure their children have more of a 'hands-on' upbringing."

Sigman also warned class-obsessed Britons needed to drop their snobbish attitude to hands-on vocational train-

## Nontraditional Career Options To Women

Most women do not know about tradeswork, technical occupations, or the apprenticeship system and have no paid work experience in these areas. In only a few instances will a female client sit down with a career counselor and say, "I want to be a carpenter." However, while the majority of women have never thought about doing nontraditional work and do not have paid work experience in a nontraditional job, one-third probably have skills or interests that are transferable to nontraditional work. When assessing women's aptitude for and interest in nontraditional occupations, you can draw out some of these transferable skills by asking the following questions:

- What are your hobbies and interests? Do you enjoy building or repairing things? If so, follow up with detailed questions about what she has done and help her to see how her experience transfers into skills for specific entry-level jobs for which your program trains/places.
- Do you do any work around the house like painting? If so, do you enjoy it? Let me tell you about painting as a career (describe wage, career ladder, entry-level requirements, and training available).
- Have you ever fixed something that was broken? For example, a toilet, a toaster oven, or a sewing machine? If so, how did you feel after you fixed it? Describe mechanical and electro-mechanical careers for which your program trains/places.
- Do you work in your garden, or have you lived on a farm or a ranch? If so, describe what kinds of things you have done. Describe landscaping jobs, laborer positions, etc.
- Do you have a driver's license? Have you ever driven a school bus, a truck, or a trailer? Can you drive a standard shift automobile? Describe careers in the transportation industry, such as trucking, delivery, and bus driving.
- Have you ever worked on your car? Changed a tire or the oil? Replaced the spark plugs? Describe jobs such as auto mechanic and auto body worker and training opportunities in these fields.
- Have you ever used hand tools? What about power tools? Have you ever used a vacuum? If so, then you have used a power tool.
- Do you sew at all? If so, did you know that following a sewing pattern requires the same skills as reading a blueprint for building a house or a schematic drawing for repairing a copy machine?

It is important to ask very specific questions. Frequently, when women are asked if they've ever fixed anything that was broken, they say no. But when prompted with specific examples, such as "What happens when the faucet in your apartment leaks or the plaster cracks?," women will say, "Yes". In fact, they did fix this or that. The client will feel empowered when she realizes that some of the little things she does around the house on a daily basis could translate into a potential career.

When presenting nontraditional job options to women, make the following key points:

- Describe potential jobs in detail, indicating the entry-level wage and career advancement opportunities, and describe the training necessary to obtain these jobs, the length of training, the cost if any, support services available, and entry-level training requirements.
- Explain the apprenticeship system. Most Americans - but women in particular - are unfamiliar with this method of training.
- Offer to put the client in touch with role models working in nontraditional jobs.
- Discuss both the benefits and barriers for women working in nontraditional jobs. Let the client decide what is best for her.
- Assist the client in overcoming her math fears, if necessary. Many women are afraid of doing math, but once they start doing it again, as an adult, they come to enjoy it.
- Mention the possibility of joining a support group for women who are in nontraditional training and jobs. If the client is interested in pursuing nontraditional work, but is afraid her family and friends will not support her decision, let her know that other support systems are available.

## Career Programs Stress College, Too, and Give Students a Leg Up, Study Says

By Erik Eckholm, Published: New York Times, June 26, 2008

Forget the old-fashioned “vocational ed” classes that sent students on a decidedly noncollege track. Over the last quarter-century, a new kind of high school program known as a career academy has proliferated, especially in low-income districts, that combines job placement, college preparation and classes beyond the vocational trades, from accounting to health care.

Now, a long-term and rigorous evaluation of nine career academies across the country, to be released in Washington on Friday, has found that eight years after graduation, participants had significantly higher employment and earnings than similar students in a control group.

Poverty experts called the findings encouraging because few interventions with low-income teenagers, especially blacks and Hispanics, have shown significant and lasting effects, and they come at a time when young minority men, especially, are losing ground disastrously in the job market.

Career academies offer students experience in the workplace, and help them get paying jobs while they pursue standard academic coursework. When the study, by the Manpower Demonstration Research Corporation, began 15 years ago, there were fewer than 500 career academies in the United States. Today there are more than 2,500, and the new findings are likely to spur more growth, several experts said.

The participants were mainly Hispanic and black, and the schools had emphases including business, tourism, health care and electronics, with students enrolled for three or four years.

Eight years after high school, when most participants were about 26, the academy group had average earnings 11 percent — or \$2,088 a year — higher than the control group.

“The findings show that you can make an investment in high school that has a measurable payoff in earnings well after,” said James J. Kemple, the author of the study and an education specialist at Manpower, a New York-based group that evaluates poverty programs.

“They also show that you can provide a solid foothold in the labor market without compromising a student’s capacity to go on to college,” Mr. Kemple said.

To compare similar students, all those who volunteered to join a career academy at each school were randomly assigned either to participate in the academy or to serve as part of a control group outside the academy. The increase in earnings was higher for men in the academy group, who showed a 17 percent difference, or \$3,731 per year. The researchers were mystified by the negligible gains for women and plan to study possible factors like the time the women spent raising children and the longer time they spent in post-

secondary schooling, which might portend better earnings in later years.

To the surprise of researchers, the groups showed no difference in rates of high school and college completion. Ninety percent of students in both groups finished high school or obtained a G.E.D., and half gained some postsecondary credential — rates far higher than among their school populations over all. Researchers believe that those who initially expressed interest in the academies may have shared similar motivation to succeed, whether or not they were chosen for the special program.

But this also suggests that something about the academy experience, apart from educational achievement, promoted greater success in the job market. One likely factor is the exposure the academies provide to a range of adults in real workplaces, said J. D. Hoyer, who directed a “school-to-work” initiative for the Clinton administration and now heads the National Academy Foundation, which advises career academies on curriculums and other topics.

“The students see what work is like, and they build a network of caring adults at school and in the workplace,” Ms. Hoyer said.

Students in an academy stay together as a group. They usually get paying internships after their junior year, which for some turn into jobs they keep through college or longer. At the tourism academy at Miami Beach Senior High School, for example, many start working on the front desks of major hotels, some with hopes of entering management.

One school in the study is Valley High School in Southern California, where nearly 90 percent of the 3,000 students are Hispanic and about 180 sophomores, juniors and seniors are in its Global Academy of Finance. Along with traditional subjects, students take computer training and accounting courses and study the stock market, real estate and personal finance. They do internships with banks, law and finance firms and in the school district’s administration, among others.

Students seem to benefit from being part of a special, small group, said Mark Bartholio, the academy director. Many do not pursue finance careers but instead go into teaching, social services or criminal justice, he said, but one graduate said the accounting skills he learned in the academy had enabled him to help start a small business.

One student who just graduated, Henry Gomez, 18, started working as a Wells Fargo Bank teller last year and is continuing this summer. “I’m not sure this is what I want to do, but I like the experience I’m gaining,” he said.

Before he entered the academy, he had worked at a Target store, said Mr. Gomez, whose parents did not finish high school. He plans to enter a community college in the fall, with the bank wages helping him pay his way.

## Financial Report as of November 30, 2007

Published in the Newsletter in accordance to the requirements of the Grand Chapter.

### Financial Report

December 01/ 2006 to November 30, 2007

Las Vegas, Nevada

#### Sky Bank

\$ 5559.62 Balance 11/30/07

\$1933.85 Deposits from dues, sales, certificates

\$3403.00

\$3092.00

\$2909.50

\$1395.06

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\$12733.41

\$ 35.00 return check charge (members dues returned)

\$ 2120.00 withdrawn from checking and moved to savings

\$10578.41 checks

Sky Bank was bought out by Huntington banks and funds transferred.

#### Huntington Bank

\$ 779.13 Beginning Balance as of 9/23/07

\$2120.62 Savings account (Money from the dues increase)

#### Ed Jones 11/30/07

\$37000.00 CD current value \$36,968.59

\$ 961.34 Money Market

# 2008 ACTE Convention and Career Tech Expo

## Travel and Housing Information

### Airlines

#### **Continental Airlines**

You may book online at [www.continental.com](http://www.continental.com). Enter the ACTE Offer Code: ZEGVAGKCDP in the Offer Code Box when searching for flights.

Or you can call Continental's MeetingWorks at 1-800-468-7022. Provide the Agreement code: AGKCDP and the Z code: ZEGV. (There is a \$15 service fee, per ticket, for all tickets issued through MeetingWorks Reservations, or any Continental Airlines ticketing facility.)

#### **AirTran Airways**

10% discount on the lowest available AirTran Airways one-way fare. Call AirTran Airways EventSavers at 1-866-683-8368. Provide the Event Code: CLT120108 (ACTE Career Tech Expo) to make reservations. You must make reservations with the EventSavers desk to receive the 10% discount.

### Hotel Reservations

Use the ACTE housing link below to make your housing reservations.

Cut-off date is November 1, 2008 for ACTE Convention rates.

- <http://www.acteonline.org/convention/index.cfm>

Transportation from Charlotte Douglas International Airport

### Ground Transportation

All ground transportation is located on the curbside of the lower Baggage Claim level of the terminal with the exception of CATS (Charlotte Area Transit System) Bus Service which picks up in front of Zone D Baggage Claim.



#### **Taxis**

Taxi service is available curbside, on the Baggage Claim level. An attendant is on duty from 6:45 a.m.-12:15 a.m. All rates below are for up to two passengers. It is about \$20.00 from the airport to Center City.

#### **Rental Car**

Reservations for Avis can be made by calling 1-800-331-1600 and use the ACTE discount number #J991598.

#### **ACTE Convention Shuttle Bus Service**

Limited shuttle bus service will be provided from ACTE Convention hotels, **except** the Westin Charlotte, Hilton Center City, Hilton Garden Uptown and Hampton Inn Uptown, to the Convention Center.



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## How great a disparity is there between the number of women and men employed in high-tech occupations?

Biological technicians and statisticians were the only two technology-oriented occupations in which more women were employed than men in 2001.

According to 2001 Current Population Survey (CPS) data, one out of ten employed engineers was a woman, while two of ten employed engineering technologists and technicians were women. Among engineering specialties, industrial, chemical, and metallurgical/materials engineers were the only occupations in which women were more highly represented than the overall percent of total women engineers. Women made up 17 percent of all industrial engineers, 12 percent of metallurgical/metal engineers, and 11.5 percent of chemical engineers. Among all other engineering specialties--aerospace, mining, petroleum, nuclear, agricultural, civil, electrical or electronic, mechanical, marine, or naval architects--women represented fewer than 11 percent.

At the same time, three out of ten computer systems analysts, engineers, and scientists were women. In addition, one out of four computer programmers was a woman.

Among natural scientists, women represented 51.6 percent of medical scientists and 44.4 percent of biological and life scientists, but accounted for a smaller portion of geologists and geodesists (24.0 percent), physicists and astronomers (7.7 percent).

### What does the projected growth in high-tech occupations mean for women?

Between the 2000-2010 period, computer engineers are projected to have the fastest growth among all occupations--664,000 such workers will be added, nearly doubling the 2000 figure. In addition, the number of computer scientists and systems analysts is expected to increase by nearly 60 percent (269,000 jobs). If women continue to make up three out of ten computer systems analysts and scientists, then an estimated 219,000 more women could be employed as computer software engineers, computer scientists and systems analysts by 2010. Computer support specialists are expected to increase by 97 percent, about 490,000 workers. If women are represented in computer support specialist jobs in the same proportion as among computer programmers, one out of four, then 122,000 more women may expect to be employed as computer support specialists by 2010.



### Trades for women!