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Saving Soldiers: Combat Challenges in Iraq Spur Medical Innovations

By Pam Savage-Knepshield, Valerie Rice, Jenny Butler, & Carita DeVilbiss

The HBO documentary film “ER Baghdad” provides a rare glimpse of daily activities in a combat support hospital as medical personnel treat burns, fractures, penetrating wounds, massive tissue damage, respiratory problems, and head injuries inflicted by the single most common cause of traumatic injury in Iraq – improvised explosive devices (IEDs). Medical personnel in these hospitals are saving U.S. soldiers’ lives at unprecedented rates. Much of their success is attributed to recent advances in medical technology, innovative care, and enhanced training. This article highlights some of the challenges confronted by combat casualties and those providing treatment, as well as human factors/ergonomics (HF/E) efforts to overcome these challenges.

Combat Challenges

Advancements in protective equipment are an important contribution. To protect soldiers from IEDs, the U.S. Army has improved armor for vehicles and upgraded personal equipment such as body armor, ballistic helmets, and combat goggles. The fit and wear of the new equipment is vastly preferred by soldiers and was evaluated with the assistance of HF/E researchers. (Go to <http://peosoldier.army.mil/multimedia.asp> to listen to soldier testimonials.)

For example, the “interceptor body armor” has ergonomically designed front and back plates that facilitate ease of movement and webbed attachment loops so soldiers can tailor their loads to mission requirements. In addition, body armor now includes additional protection for the shoulder and upper-arm areas.

Another example is the advanced combat helmet, which is lighter and more comfortable for extended periods than previous helmets. A third example speaks to the importance of appearance: Soldiers were not wearing their combat goggles because they thought the goggles were ugly. Since they were replaced with “cooler-looking” goggles, soldiers wear them more readily, and there has been a significant decrease in eye injuries (Gawande, 2004).

Advances in Medical Technology

Advances in medical technology, coupled with solid training that imparts the knowledge to effectively use the technology, is critical to providing patient care in austere field environments. Uncontrolled bleeding from injury is one of the major causes of death in combat. To restrict blood flow, recently fielded medical

supplies include a new first-aid kit containing a wrap-style bandage and clamp to apply compression to a wound, an improved tourniquet that can be applied with one hand if necessary, and the chitosan hemostatic dressing, made from a shrimp-cell extract, which immediately stops bleeding by bonding to blood cells to form a clot (Cox, 2005; Fleming-Michael, 2005).

All basic recruits now receive first-aid training that focuses on using the new medical supplies to control bleeding and to assist with other medical problems (Wood, 2005). Receiving realistic training prior to deployment also eases the effects of battle stress (Funk, 2005).

Although all soldiers receive first-aid training and many have earned a Combat Lifesaver designation, it is the combat medic who possesses the necessary skills to assess, stabilize, and provide emergency medical treatment for those with life-threatening trauma. Combat medics receive realistic training in which they experience the entire process from precombat checks to after-action reviews so they can learn from their mistakes without risking lives (“Golden Medic Exercise,” 2005).

The advanced training program for these trauma specialists is one of many demanding specialty training programs in the military. A major challenge for these courses is high failure rates. A landmark HF/E study (Rice et al., 2006a, 2006b) is under way to develop a tool to provide individualized strategies for academic success at the beginning of the course. In a series of studies, focus groups were conducted with the combat medics’ instructors and leaders, revealing both “internal” (e.g., motivation, stress, life skills, cognitive ability, and behavioral symptoms similar to those associated with attention deficit and hyperactivity disorder) and “external” issues (e.g., selection and training of instructors, the length of the training day and program, and the difficulty level of the training material) that were believed to influence attrition. An interview study investigated why soldiers believe they failed or did well in their advanced individual training program.

A prediction study was conducted to determine which cognitive and personal risk factors influence academic performance, to develop a prediction model to forecast student performance, to create a valid survey instrument to identify those at risk for academic difficulty, and to design a software program to administer the survey and provide feedback to soldiers and their academic advisers.

Saving Soldiers...

(continued from page 1)

In another study, researchers examined the Armed Services Vocational Aptitude Battery (ASVAB) and different combination of ASVAB subtests for their ability to predict academic performance. Finally, a pilot study on an intervention technology examined the relationship between performance on Interactive Metronome® (IM) and performance during combat medic training. The IM employs auditory and visual input to elicit rhythm-based responses from users and is used to improve concentration, attention, and motor skills in children with attention deficit and hyperactivity disorder. Professional athletes also use the IM to improve their motor timing and coordination. This line of research uses macro-ergonomic design principles that explain a holistic approach to design by focusing on the interactions of the various systems that interact to influence an outcome – in this case, soldier performance.

To ensure that predeployment and refresher training is provided for both combat lifesavers and combat medics, Medical Simulations Training Centers have been developed (<http://peostri.army.mil/PRODUCTS/MSTC/>). Additional advanced medical technology is included in the Future Force Warrior program demonstration program (<http://www.natick.army.mil/soldier/wsit/>).

A physiological status monitor (PSM) sensor suite will be embedded in each soldier's uniform. The PSM, along with advanced geo-location and communication systems, will transmit alerts when a soldier becomes a casualty. These advanced technologies will also enable the combat medic to conduct a remote triage assessment and to locate and acquire casualties to provide timely, life-saving interventions. Additionally, the embedded training system with the PSM sensors will be able to extend the medical training from fixed training facilities to the field environment.

Innovative Care

New medical techniques result in successful treatment. For example, after arriving and being stabilized at a combat support hospital, patients who would be better treated at a more sophisticated hospital (such as in Landstuhl, Germany) may have their wounds vacuum-sealed in plastic before transport (Zoroya, 2006).

Combat stress-control teams in Iraq go to the front lines to provide outreach services in the areas of prevention and treatment.

They may conduct unit assessments, provide individual or group counseling, or help soldiers cope with the stress of combat (Funk, 2005). They also conduct critical-incident stress debriefings following traumatic events. The application of training techniques developed through ergonomics research and targeted to training for stressful environments enhances learning and retention, which affects patient treatment during deployment (Rice & Gerardi, 1999).

The speed of transportation via specially configured aircraft from the battlefield to a combat support hospital and care received during transport are also considered crucial medical innovations. During an evacuation, patients may receive a patient-controlled analgesic infusion pump to self-administer a narcotic that is monitored and has been preprogrammed by a nurse (Cavallaro, 2005). This ensures immediate pain management during transit and frees the medical staff to administer other treatments during the flight.

Continuing Challenges

Enemies whose goal is to inflict injury continue to find unique methods to accomplish their objectives, while strained medical personnel work around the clock repairing the damage. The head, neck, and extremities remain areas that are difficult to protect. However, efforts are under way to anticipate and adapt to the enemy, thus preventing injuries. The U.S. Army Medical Research and Materiel Command's Field Assistance in Science and Technology (FAST) team now typically recruits an Army Medical Department representative (FAST MED) in addition to a human factors representative from ARL for FAST teams. These small multidisciplinary teams travel to the front lines to identify materiel solutions, doctrinal changes, and modifications to existing materiel to help soldiers. The FAST MED serves as the medical point of contact in the field to ensure that all medical issues are captured and coordinated prior to the initiation of any action.

At the conclusion of one FAST team's efforts, 15 projects and 30 issues were identified and forwarded for resolution. Examples of HF/E macroergonomic solutions this effort has provided include locating a flight-certified pump for pain management during medical evacuation flights, securing hypothermia prevention kits and temperature sensor catheters to decrease complications due to hypothermia, educating units on how to order medical supplies, and providing additional training to combat lifesavers (Fleming-Michael, 2006). Although the challenges continue, so do the extraordinary efforts to overcome them.

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ANNUAL MEETING

Special Mentoring Program at HFES 2006

By Haydee M. Cuevas, National Ergonomics Month Committee Chair and Anthony D. Andre, Student Affairs Committee Chair

Our profession's growth and continued success can be accomplished only through mentoring the next generation of human factors/ergonomics (HF/E) professionals. Access to role models and mentors is important for our up-and-coming young student professionals as well as early-career professionals and those who may be switching to this field from other careers. To address this critical need, the HFES 50th Annual Meeting will feature a multifaceted mentoring program, providing students and early-career and transitional professionals with opportunities to develop mentoring relationships with established professionals in the HF/E field.

First, we will be holding a series of informal mentor-mentee lunches from 12:00 noon to 1:30 p.m. on Tuesday, Wednesday,

and Thursday, October 17–19. Lunch will be provided to those who sign up. Last year's mentors represented a Who's Who of some of the Society's most respected members, including past presidents and officers. We expect many of these professionals to join us again this year, with different professionals participating each day.

To keep the lunches intimate and informal, attendance will be limited to 25 (20 students and 5 professionals per session). Reservations will be accepted on a first-come, first-served basis, though a waiting list will be established in case of cancellations. Please RSVP to Haydee Cuevas (haydee.cuevas@satechnologies.com) by *September 25, 2006*, to reserve your place. When responding, please indicate the day you wish to attend (Tuesday, Wednesday, or Thursday), your field of interest (e.g., aviation, HCI, systems engineering), and career path (e.g., academia, industry, government).

Second, a special invitation is extended to students and early-career professionals to attend the Board of Certification in Professional Ergonomics (BCPE) Reception on Tuesday evening, October 17, from 7:00 to 9:00 p.m., immediately following the Student Reception. The goal of incorporating a mentoring component into the BCPE Reception is to broaden the number of networking opportunities available to our junior members, allowing them to meet senior members who may offer guidance for succeeding in their chosen fields. Please RSVP to Haydee Cuevas by *September 25, 2006*, indicating your field of interest and career path. For further information about BCPE, contact Chris Hamrick (christopher.hamrick@ohiobwc.com) or visit <http://www.bcpe.org/>.

Finally, in an effort to strengthen the HFES student community, the 50th Annual Meeting Host Committee offers the first Student Lounge. Shaped by feedback from more than 30 students from different regions, the lounge is designed to help students network and socialize throughout the meeting in a comfortable, relaxed environment. All students are welcome to stop by, meet other students, discuss research activities, and take advantage of the bulletin boards. In the lounge, we will also host a number of planned discussions with established professionals in the field, provide a forum for students to present their research ideas, and showcase student chapter information. For more information about the Student Lounge, contact Anthony Andre (andre@interface-analysis.com).

To ensure the success of these initiatives, however, we need involvement from our most respected and established professionals. Please contact Haydee Cuevas to participate as a mentor. With your support, this year's mentoring program promises to be a most rewarding addition to the HFES Annual Meeting!

Annual Meeting Sponsorship Opportunities

The HFES 50th Annual Meeting, to be held October 16–20, in San Francisco, is an opportunity to promote your organization's products and services. Members are encouraged to pass this information to their employers and other interested parties.

Increased Visibility

The following sponsorship opportunities are available. Recognition is provided in the pre- and postmeeting issues of the *HFES*

Bulletin, the Annual Meeting Program, on-site signage, and the daily newsletter. Also, sponsors' logos will be included on the Sponsors page at the HFES Web site.

Plenary Session: \$5,000. One sponsorship is available. The Opening Plenary Session, Tuesday, October 17, features the keynote address and presidential address and recognition of HFES awardees and newly elected Fellows. Special 50th Annual Meeting commemorations are also anticipated. The sponsor will be acknowledged from the podium, and signs bearing the sponsor's name and logo will be placed at the door.

Message Center/E-Mail Stations: \$5,000. One sponsorship is available. Simply provide a screensaver with your company logo for display on monitors at the free e-mail stations where attendees go to check their e-mail. This heavily utilized service is an excellent way to increase your visibility. Also includes signage; logo mousepads will be included if supplied by the sponsor (6–10 stations).

Coffee Breaks: \$2,500. Eight sponsorships are available. Morning and afternoon coffee and beverage breaks are offered in the exhibit hall and other locations. Signs bearing the sponsor's name and logo will be placed in the area. In addition, the sponsor's representatives are encouraged to meet and greet attendees in the coffee break areas.

How to Reserve a Sponsorship

If you wish to reserve a sponsorship, please contact Dick Bublitz, 800/485-5029, 818/992-0366; dick-rcb@juno.com. Sponsorships must be reserved by September 8 and are allocated on a first-come, first-served basis on receipt of a \$500 deposit. General meeting support is also welcome. To discuss alternative sponsorship ideas, please contact Carlos de Falla at 310/394-1811, carlos@hfes.org.

Practicing What We Preach: Applying HF/E Principles to Poster Presentations

By Raegan M. Hoelt, Sherri A. Rehfeld, & James F. Kravitz

HFES has increasingly come to recognize the importance of the poster presentation format at the annual meeting and has begun holding poster proposals to the same high standards as other

presentation formats. In an effort to improve the quality of posters, we conducted a small-scale study at the 49th Annual Meeting to evaluate the posters based on presenters' effective application of human factors/ergonomics (HF/E) principles.

A group of four volunteer reviewers approached several poster presenters and requested permission to rate their posters. All the presenters agreed to participate in the informal study, and many actually praised the effort as a much-needed one. Additionally, many presenters noted that they would be in favor of evaluating oral presentations as well. In total, 38 posters were evaluated on the basis of aesthetics and their ability to attract attention and communicate effectively. The survey used to rate each poster contained

mostly 5-point anchored scale questions, with responses ranging from 1 (low) to 5 (high), and some yes/no questions.

First, we asked poster presenters what factors they considered when designing their posters. The top three responses were (a) amount of information – provide enough without overloading the reader, (b) use of graphics, and (c) presentation of key concepts. These findings are positive and generally in line with the assumption that HF/E professionals practice what they preach. However, many presenters who attempted to critique themselves pointed out certain aspects of their displays that, on further reflection, could have been better.

The ratings and comments from the four reviewers also suggest that although presenters may be attempting to follow HF/E principles, the end product is not always a reflection of that effort. Qualitative comments from the reviewers noted that the top three issues were that the text and/or graphics were too small, it was difficult to follow the flow of information, and color was not used appropriately or effectively.

Analysis of the quantitative data showed that ratings were mostly average or slightly above average. Overall, the scaled items had mean scores between 3 and 4; only one item (“Amount of information is enough to communicate key points”) was above 4, with a mean of 4.1. Although these results are encouraging, findings suggest that there is room for improvement, given that only one mean rating was above 4. The quantitative data suggested that improvements could be made in the design of effective graphics, amount of information presented, and use of colors.

In the majority of posters evaluated, graphics were inadequately labeled. We speculated that use of default chart templates may have contributed to this problem. The amount of information presented was found to be sufficient to communicate to the

Tog to Deliver Closing Plenary Address

HFES will cap the 50th Annual Meeting in San Francisco with a special address at the first-ever Closing Plenary Session. Bruce “Tog” Tognazzini will deliver “The Next 50 Years” on Friday, October 20, from 3:30 to 5:00 p.m.

A principal with the Nielsen Norman Group, Tog works in the fields of usability and human-computer interaction. He was also a lead designer for WebMD and was an engineer for strategic technology at Sun Microsystems. During his 14 years at Apple Computer, he founded the Apple Human Interface Group and acted as Apple's human-interface evangelist. Tog has published two books and has consulted for a number of companies, including General Electric and Microsoft.



Bruce “Tog” Tognazzini

broad audience attending poster sessions, but often there was too much information to digest or read comfortably. Color was used only half the time to make important elements stand out; when used to differentiate information, it was rarely accompanied by redundant cues.

For several years, HFES has provided guidelines with useful tips for preparing posters, including a sample layout. During this informal study, however, only one presenter mentioned using these guidelines. Some were not even aware they existed, despite the fact that they are provided to all poster presenters. We revised the poster guidelines for the 50th Annual Meeting based on the major findings and recommendations from this study. The new guidelines provide more specific information about how to design posters that conform to HF/E principles.

Poster presenters enjoy the unique opportunity to interact one on one with attendees in an open, dynamic setting. By practicing what we preach, we can increase the effectiveness of this presentation format and improve the overall quality of the annual meeting technical program.

Raegan M. Hoefft has been working as a graduate research assistant at the Team Performance Lab at the university of Central Florida since the summer of 2000. She is currently an ABD student working toward her PhD in applied experimental and human factors psychology and is working on an MS in industrial engineering: human engineering/ergonomics. Sherri Rehfeld is a graduate student in the Department of Psychology and also works at the Team Performance Laboratory. Her research experience includes head-mounted display warnings for helicopter simulation at the NASA Ames research center in Moffett Field, CA. Jamie Kravitz is a usability engineer for Interface Analysis Associates in San Jose, CA. Formerly a modern dancer and video producer, he now enjoys inventing cocktails in his shockingly limited spare time.

Celebrate NEM 2006 at the HFES Annual Meeting!

By Haydee M. Cuevas, National Ergonomics Month Committee Chair

National Ergonomics Month (NEM) in October is "A Time For Teaching, Learning, Networking, Service, and Fun!" To celebrate NEM 2006, all 50th Annual Meeting attendees and their guests are invited to a special 90-minute NEM session, to be held on Monday, October 16, from 4:45 to 6:15 p.m., immediately preceding the Opening Gala Reception. HFES President-Elect Waldemar Karwowski will share his vision for NEM 2006. The session will also showcase outstanding NEM projects involving schools, community service, and the media, including the announcement of this year's winners for the NEM 2006 Best Action Plan Contest and the NEM 2005 Best Action Plan Implementation Contest.

I will be on hand with special NEM stickers, bookmarks, and premiums that you can distribute during community events and school visits to promote NEM. The session will also feature sev-

eral entertaining and informative interactive demonstrations illustrating human factors/ergonomics principles.

The submission deadline for the NEM 2006 Best Action Plan Contest is *August 27, 2006*. For more information, see the May issue of the *HFES Bulletin*, visit <http://hfesnem.org>, or contact me at haydee.cuevas@satechnologies.com.

Come to the NEM 2006 session ready to participate, have fun, and win prizes!

2006 Arnold Small Lecture in Safety

Michael Posner, professor emeritus at the University of Oregon and adjunct professor of psychology in psychiatry at the Weill Medical College at Cornell University, will deliver the 2006 Arnold Small Lecture in Safety at the HFES 50th Annual Meeting. Posner will present his talk, "Attentional Networks and Human Performance" on Tuesday, October 17, from 10:30 a.m. to 12:00 noon.

Posner will examine the network of brain areas that appear to be specialized for dealing with competing items of attention and their limitations. He will talk about the anatomy and connectivity involved with these processes and will look at how these brain areas relate to the ability to notice and correct errors. According to Posner, the results of this research have advanced the understanding of how capacity limits influence the performance of people in various environments and suggest why the study of brain systems is important for understanding human performance.

Posner is best known for his work with Marcus Raichle on imaging the human brain during cognitive tasks. He has worked on the anatomy, circuitry, development, and genetics of three attentional networks underlying alertness, orienting, and voluntary control of thoughts and ideas.

The Arnold Small Lecture Series reflects the systems approaches to safety pioneered by Arnold Small and some of the breadth of his interests. Recent lecturers have included Gary Klein, Joan Claybrook, and Daniel Schacter.

Display Educational Materials

This year's educational materials booth at the HFES 50th Annual Meeting, which will feature information about HF/E graduate and undergraduate programs, is going interactive! Throughout the meeting, representatives of various programs will be present in the booth to talk about their programs and answer questions. A schedule listing the featured programs will be published in the September *HFES Bulletin*, the daily on-site newsletter, and the Annual Meeting Program.

All universities are invited to display brochures, applications, and other materials in the booth, which is hosted by the HFES Education Technical Group and the Student Affairs Committee. Simply bring your materials to the booth when it opens on Tuesday, October 17, at 3:00 p.m. Any leftover materials must be picked up during teardown hours (Thursday, October 19, 3:30–8:30 p.m.). For further information, contact Lois Smith, lois@hfes.org, 310/394-1811.

HFES Election Deadline Extended for Non-U.S. Members

It has come to the Society's attention that the mailing of ballots to members outside the United States was delayed by the mailing house. As a result, some members were not able to vote by the original deadline of July 17.

All non-U.S. members have been notified that the deadline for ballots from members outside the United States is being extended to August 17. Ballots received by that date will be counted, and the final election results will be published in the *HFES Bulletin* and on the Web site. ☉

STANDARDS

HFES 200 Canvass Draft Released

By Paul S. Reed, HFES 200 Committee Chair

The Human Factors and Ergonomics Society announces the release of the HFES 200 document, *Human Factors Engineering of Software User Interfaces*, to the canvass committee and for public review in accordance with American National Standards Institute (ANSI) procedures. The HFES 200 project has been conducted according to the essential requirements procedures of ANSI and has a goal of establishing a new American national standard.

The objective of the HFES 200 project is to provide design requirements and recommendations that will increase the accessibility, learnability, and ease of use of software. The ultimate beneficiaries of HFES 200 are the end users of software. It was the needs of these users that motivated the design recommendations in HFES 200. The application of this standard is intended to provide user interfaces that are more usable, accessible, and consistent and that enable greater productivity and satisfaction.

Human Factors Engineering of Software User Interfaces consists of five parts:

- HFES 200.1: Introduction
- HFES 200.2: Accessibility
- HFES 200.3: Interaction Techniques
- HFES 200.4: Interactive Voice Response
- HFES 200.5: Visual Presentation and Use of Color

HFES 200 Part 1: Introduction provides an overview of the content, explains relationships among the individual parts, and provides guidance on the relevance of individual parts to the development process so that designers may understand where and when to use the parts.

HFES 200 Part 2: Accessibility provides recommendations on features and functions of computer operating systems, drivers, application services, other software layers on which applications depend, and applications that increase the accessibility of applications for users with disabilities. Hardware is not specifically addressed by any recommendations; however, many hardware assistive de-

vices may utilize recommended functions that are provided by operations system and application software. HFES 200 Part 2 has been extensively harmonized with the International Standards Organization (ISO) 9241-171 Software Accessibility Committee Draft released in the first quarter of 2005.

HFES 200 Part 3: Interaction Techniques incorporates material from ISO 9241 Parts 13 through 17 and is compatible with those ISO standards.

HFES 200 Part 4: Interactive Voice Response consists of completely new material that has not appeared in ISO 9241 standards.

HFES 200 Part 5: Visual Presentation and Use of Color incorporates material from ISO 9241 Part 12 and includes new recommendations on the use of color.

Copies of the HFES 200 canvass document are available from HFES, P. O. Box 1369, Santa Monica, CA 90406-1369, 310/394-1811, fax 310/394-2410, info@hfes.org, <http://hfes.org>. The cost of the document is \$175 for HFES members and \$200 for non-members, plus \$5 shipping/handling. Order online at <http://hfes.org/Publications>. ☉

STUDENT VIEWS

How to Save Money on Textbooks

By Melanie Diez, Student Views Editor

With the new school year just around the corner, it's time to start thinking about purchasing textbooks for class. It's no secret that textbooks can run up a credit card bill into the hundreds of dollars, so here are a few tips to help keep that bill a bit more manageable.

Step 1. Find out what books you need for the upcoming semester as soon as possible. For each of your classes, get the title and edition of the textbook or its ISBN and the cost (used and new).

Ordering books (described below) takes time, and you should build in at least three weeks before classes start to get your books. If the bookstore is a little slow getting the required readings listed, e-mail your professor directly and ask him/her what books you'll need (title, edition, etc.). This is especially important because not all professors rely on the bookstore to provide books.

Step 2. Go to an online price comparison engine. This is the fun part. Go to your favorite price comparison Web site and search for your textbook by title (and edition, if possible). Addall.com is useful because you can sort individual books by price and shipping destination. It also informs you of current coupons in effect. Bookhq.com and BestBookDeal.com are similar sites. By sorting the listings by price, you'll find the source that offers the lowest price at the top. Alternatively, you can use a site like Booksprice.com, which lets you search for several books at once to find the lowest "package" deal. Addall.com has a beta version of a multiple-book search as well. Once you have found the cheapest books, go to the specific sites for each book and purchase them online (step 3).

More and more universities are allowing corporations such as Barnes & Noble or Borders to run their bookstores. Don't assume they all offer the same prices. I priced a book at my university's bookstore (operated by Barnes & Noble) for \$49.95. When I called

STUDENT VIEWS, cont.

a Barnes & Noble bookstore close to my house, they quoted me \$39.95 for the same book. Finally, I went to Barnes & Noble online and was able to buy the book for \$36.25 (\$31.96 + \$4.29 shipping and handling) – that’s a savings of \$13.70 on one book. The take-home message is this: The campus bookstore is often the worst place to buy books. Local brick-and-mortar bookstores can be cheaper, but online is usually best, even when you factor in shipping and handling. The main advantage to buying at the campus bookstore is convenience.

Step 3. Order your books online. This is the tricky part. Even if you use a “package” comparison Web site like Booksprice.com, it will only tell you which single bookstore will give you the best deal on all your books. You might get a better deal by ordering from several different sites. Figure out what combination of books and book dealers gives you the best price. Here are a few tips to help in the process:

- *Check for coupons.* Most stores offer coupons to first-time buyers, but the challenge is finding them. Go to Google and type in the name of the bookstore, followed by “coupon.”
- *Gift certificates.* If you have relatives who never know what to get you for your birthday, ask for a gift certificate to your favorite local or online bookstore. Then enter the gift card code when prompted.
- *Free shipping.* Many sites offer free shipping on orders over a certain amount. Make sure it is clear whether this applies to a single book or to the total order price, otherwise you may get stuck paying shipping and handling on a \$75 order made up of three \$25 books.
- *Shipping and handling variations.* Compare shipping and handling charges as you would book prices. You’d be surprised how much these charges vary even though they may all use the same delivery option.
- *Check the edition.* This is crucial. You may end up buying the wrong edition of the textbook. If it seems you are getting a super deal on a textbook, it might be because you are buying an older edition.
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