Surgical Skills
Course Guidebook

ACS Education

American College of Surgeons

Foreword

The American College of Surgeons (ACS) regularly offers a variety of surgical skills courses at the annual Clinical Congress and through the ACS Accredited Education Institutes, a network of simulation-based surgical education and training centers. The Surgical Skills Course Guidebook was developed to standardize skills course development and implementation and enhance the impact of these courses.

This guidebook applies adult education principles to address specific steps in course development. It clearly defines resources, including the simulation model, and focuses on appropriate business plans to support sustainability. The guidebook provides valuable tools such as checklists, worksheets, and forms to guide the surgical skills course process from conception and development to delivery and evaluation. We believe this guidebook is essential for surgical skills course chairs, faculty, and staff.

This guidebook is the result of the remarkable work of the ACS Surgical Skills Committee Guidebook Workgroup led by John H. Armstrong, MD, FACS, MAMSE. We would also like to extend our sincere thanks to the Division of Education staff, M. Jane Burns, MJHL, Scott C. Miller, MEd, Kenya L. Posley, MA and Luciana C. Miller, BA.

On behalf of the Committee on Surgical Skills Training for the Practicing Surgeon, we extend our congratulations and gratitude to the entire team for producing such a valuable practical guide.

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Preface

Surgical skills courses, when well-organized and effectively taught, are perfect for practicing surgeons to learn new skills and improve or validate existing ones. Unfortunately, many surgical skills courses are not developed using adult education principles, lack proper resources, and have incomplete business plans. These shortcomings can lead to poor learning outcomes and financial challenges for the course. Recognizing these issues, the ACS Committee on Surgical Skills Training for the Practicing Surgeon established a workgroup to create a guidebook for Surgical Skills Courses.

Over the course of 10 months, the workgroup conducted 10 virtual meetings and eight progress checks. The outcome of this effort is the creation of a guidebook detailing the deliberate processes involved in course creation, implementation, and evaluation to meet ACS educational and business standards. The collaboration between workgroup members and ACS Education Division staff was highly effective. Alongside the guidebook, an accompanying Excel workbook was created to aid surgical skills course chairs in following the guidebook. Applying the guidelines outlined will improve the value of surgical skills courses and facilitate standardization.

Course chairs, faculty, and staff should find this guidebook helpful for planning and delivering courses that inspire quality surgical care.

John H. Armstrong, MD, FACS
Workgroup Chair/Guidebook Editor

Acknowledgments

The Committee on Surgical Skills Training for the Practicing Surgeon Guidebook is a result of strong collaboration throughout 2020 between the American College of Surgeons (ACS) Surgical Skills Committee Guidebook Workgroup and the Division of Education Skills Course staff. The ACS thanks the team of Workgroup members and Skills Course Staff for their hard work to enhance ACS Surgical Skills Courses and inspire quality in surgical skills education.

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Overview of ACS Surgical Skills Courses

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Chapter 1: Overview of ACS Surgical Skills Courses

Overview of ACS Surgical Skills Courses

ACS Surgical Skills Courses are intended to help learners acquire initial technical and procedural skills or improve existing skills. The target audience for these courses is the practicing surgeon and may include other members of surgical teams. Hands-on skills training is a core element of surgeon education. The ACS courses include half-day to full-day sessions, with didactic instruction, demonstrations, and guided hands-on practice. The courses provide Continuing Medical Education (CME) credit hours, self-assessment credits, and Level II or Level III skills verification (see Learner and Course Evaluation section at the end of this Chapter).

The planning and implementation cycle for courses at Clinical Congress can span up to 20 months, from the time the call-for-proposals opens in March, to the time the course occurs in October of the following year.

Progressing from course conception to course delivery involves a series of defined steps:

- Gap analysis
- Proposal preparation and submission
- Proposal review and notification
- Course development and implementation
- Learner and course evaluation

Gap Analysis

A "gap" is an identified difference between current practice and best practice. Gaps may vary for different types of surgical specialties, patients, and settings. The ACS defines two levels of gaps:

- Committee-level gaps
- Course-level gaps

Committee-level gaps: Annually, ACS Committees and Advisory Councils provide a gap analysis related to areas under their purview. These gaps are submitted via an ACS online system. When skills course proposals are drafted, the committee-level gaps are shown to the submitter. The submitter then selects which committee-level gaps will be addressed by the proposed course.

Examples

- Many surgeons interested in global health outreach lack global surgical skills.
- Many surgeons do not have ultrasound skills for the bedside diagnosis of common surgical diseases (i.e., lipoma, breast mass, hernia, cholelithiasis, appendicitis, and deep venous thrombosis).
- Minimally invasive inguinal and ventral hernia repairs are underutilized in the indicated population.

Course-level gaps: A course-level gap defines a need that a course is intended to improve, at least in part. When submitting a proposal, the submitter should include specific skill gaps.

Examples

- Trauma surgeons frequently lack durable advanced skills in the operative management of vascular injuries.
- There is a gap in knowledge and skills in the use of thyroid and parathyroid ultrasound by surgeons caring for patients with thyroid and parathyroid diseases.
- Breast cancer operations are often performed without oncoplastic techniques that improve cosmesis.

Course developers should refer to both levels of gaps and appreciate the needs expressed by the Committees or Advisory Councils who sponsor proposed courses. Gap analysis requires specific answers to two questions:

- What is the current situation?
- What is the desired situation?

The gap is the difference between these situations, and the analysis should explore how to close this gap so that the current state moves toward the intended state.

The gap analysis may define insufficient skill or lack of confidence in performing specific procedures, from new technology and techniques to readiness for low frequency/high risk operations. Course developers should identify barriers to the introduction of new skills into practice settings as well (e.g., austere, community, rural, and tertiary). A brief video from the Accreditation Council on Continuing Medical Education (ACCME) provides a further overview of gap analysis (https://www.accme.org/resources/video-resources/accreditationrequirements/addressing-practice-gaps).

A variety of sources are useful in analyzing a gap:

- Evidence-based literature
- Board requirements
- Specialty and subspecialty clinical practice guidelines
- Surgical organization policy statements
- Editorial and advisory board statements
- Surveys of the surgeon community
- Textbooks and surgical atlases
- Learner feedback from previous CME activities
- National health care performance
- National registries and databases
- Patient Reported Outcomes

The gap analysis helps to ensure that the skills course is developed with the end in mind—a positive change in the learner's awareness, knowledge, technique, and confidence to use these skills in practice.

Proposal Preparation and Submission

The course proposal provides all essential course details to enable the Program Committee to adequately assess the merit of the proposed course and decide whether to include it in the Clinical Congress Program.

Course proposals are submitted during the annual Clinical Congress Call-for-Proposals, typically March-May in the year preceding the intended Clinical Congress.

A key question to consider before proposing a Skills Course is, "What type of educational intervention would reduce, or possibly eliminate, the identified gap(s)?"

Beyond answering, "a hands-on skills course," one should consider a number of specific details as described below.

The Course Proposal is entered and submitted using an on-line template that is accessed at http://webs.facs.org/meetings/proposals/index.cfm.

The proposal site includes six tabs (tabs 2-6 must be completed before submitting the proposal):

1. The *Welcome* tab contains instructions for completing and submitting a course proposal.
2. The *Proposal* tab contains a form for entry of most course details:

- Course Type: S*elect Surgical Skills Course (Paid Course).*
- Title: Enter the proposed course title.
- Description: Briefly (maximum 140 words) describe the purpose, instructional method, and learner-centered outcome. The description should provide enough detail to help a learner decide whether to enroll in the course.
- Learning objectives: State at least one learning objective. Guidance for writing learning objectives is readily available on the proposal site (see also Chapter 2).
- Credit hours: Select the course length in hours (for CME credit determination).
- Tracks: Select up to 5 tracks from a list of 25.
- Taxonomy: Select *Clinical* or *Non-Clinical*. If *Clinical* is selected, thoughtfully select a *primary category*, *topic*, and *sub-topic*.
- Competencies: Select which of the ACGME competencies the course will address.
- Target audience: Select *Physician*, *Allied Health*, or *Other.*
- Instructional methods: Indicate whether the instruction will include a didactic presentation, demonstration, hands-on workshop, or other methods. Note that a
- Surgical Skills Course must include hands-on training.
- Hands-on skills models: Indicate
- Special Resources: Describe other equipment, materials, or support required.

3. The Committees tab is used to select or enter any committees sponsoring the course.
4. The Practice Gaps tab displays all Committee-level Gaps identified by the sponsoring committee(s). The proposal submitter may
   a. Choose those gaps that are relevant to the proposed course, and/or
   b. Write a Course-level Gap if desired.
5. The Course Chairs tab is where the names of the Chair and Co-Chair are entered.
6. The Submission tab requires the submitter to enter contact information for the "corresponding author" (the person who should receive any related correspondence from ACS staff). This tab also allows the submitter to "save as incomplete" or "submitproposal."

Proposal Review and Notification

The Program Committee reviews and selects skills course proposals in July, 15 months before the planned Clinical Congress. The selected proposals for the following year are presented to the Program Committee Liaisons and Board of Regents in October during Clinical Congress. Notification of submitters and course Chairs begins during the month after Clinical Congress. Prior to the Program Committee's review, all Skills Course Proposals are discussed by the Committee on Surgical Skills Training for Practicing Surgeons. This Skills Committee then makes its recommendations to the Program Committee. Note that some proposals may be sponsored directly by the Skills Committee.

Course Development and Implementation

The approved proposal is the basis for course development and delivery (Chapter 2), as well as the CME credit approval process (Chapter 3). The Course Chair and Co-Chair fulfill the proposal on a timeline and with a business plan described in Chapters 4 and 5, respectively.

Learner and Course Evaluation

Learners are assessed for acquisition of knowledge and skills to course objectives through a multiple-choice pre-/post-test and a skills assessment card, respectively (Chapter 2).

Learner progress with skills acquisition and retention is tracked by verification levels in ACS courses:

1. Verification of attendance
2. Verification of meeting course objectives
3. Verification of knowledge and skills
4. Verification of preceptorial experience
5. Verification of satisfactory patient outcomes

ACS skills courses should move beyond Level 1 and Level 2 (formative) to Level 3 (summative) assessment, and set the stage for Levels 4 and 5. Tools exist for objective skills assessment, to include the Objective Structured Assessment of Technical Skills (OSATS) and Global Operative Assessment of Laparoscopic Skills (GOALS).

Surgical skills courses must be considered in the context of skills transfer to surgical practice and skills retention through a longitudinal curriculum. This transfer involves course takeaways for the surgeon and considerations for practice integration at the surgeon's home institution.

Course evaluation occurs through learner surveys and review of course results relevant to filling the intended skills gaps.

Chapter 2
Surgical Skills Course Development

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Chapter 2: Surgical Skills Course Development

Creation of educational activities proceeds through a sequential series of steps: needs assessment, learning objectives, course description, evidence-based content, instructional design, learner assessment, and course evaluation. The Skills Course Planning Workbook (Excel) with 9 worksheets is a programmatic tool that helps keep course planning on track while promoting collaboration and transparency between Course Chairs and the ACS Surgical Skills team. Worksheets are referenced (and underlined) in the appropriate sections of this Chapter, as well as Chapters 4 and 5. A completed example Skills Course Planning Workbook is in Appendix 3.

Needs Assessment

A needs assessment is a systematic exploration of the need for education or training. The process involves first establishing who the learners are (i.e. what are their levels of training and expertise) and then determining what skills they have, what skills they need, and how best to deliver training to address any deficiencies. The needs assessment derives from the gap analysis described in Chapter 1: from broad gaps, such as appropriate use of emerging technology and current practice outside of clinical practice guidelines, learner-specific needs are identified for individual surgeons and, potentially, surgical teams. Specific deficits can be found in knowledge, skills, and practice implementation. Surgeons are at various stages of professional development beyond training, to include early, mid-career, and seasoned surgeons. Knowing the surgeon learner's professional stage and practice environment can help shape both content and scope of the skills education experience.

The needs assessment links the gap analysis to intended learner change by asking three questions:

1. What is the general practice gap? For example: Surgeons lack knowledge and skills to perform laparoscopic common bile duct exploration—LCBDE.
2. What are learner-specific needs that must be addressed to fill the practice gap? For example: Learners need to be able to list indications and contraindications, describe the relevant anatomy, define essential steps, and demonstrate safe performance of LCBDE.
3. What changes should learners make as a result of taking the course? For example: Ensure appropriately trained surgical team and OR logistics for performance of laparoscopic common bile duct exploration; perform LCBDE to standard; and track results of LCBDE for performance improvement.

On the Needs Assessment worksheet, Course Chairs should list the learner-specific needs that the course will address.

Contemporary Strategies for Minimally Invasive Hernia Repair
Date: 10/16/2020 | Time: 8:00 - 5:30
8.0 CME Hours
Course Location: Conference Center
Chair: Carla M. Pugh, MD, FACS **Co-Chairs:** John S. Roth, MD, FACS and Gina L. Adrales, MD, FACS

Needs Assessment
List the specific needs that the course will address.

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Competency-based Course Objectives

Learning objectives derive from the ACGME core competencies:

- Patient care (including technical skills)
- Medical knowledge
- Practice-based learning and improvement
- Interpersonal and communication skills
- Professionalism
- Systems-based practice

Objectives connect content to observable learner outcomes and focus course teaching, learning, and evaluation. The Chapter Appendix includes the guideline, "Writing Effective Objectives Using Bloom's Taxonomy." Course content and activities must relate to the course objectives, which should be specific, measurable, achievable, relevant, and timely (SMART) for the learner. Skills courses contain a single verb and its object of observable action. Verbs vary by anticipated level of hierarchical learning and by the nature of the activity. With knowledge acquisition, objectives should focus on comprehension (understanding), application, and analysis, using verbs that include explain, determine, and select. For skill acquisition, objectives should reflect application, analysis, and evaluation, using verbs such as perform, outline, and critique. A combined objective for knowledge and skill acquisition would emphasize creation, with verbs like plan, design, and develop.

Examples:

- At the end of this course, learners will be able to explain the indications and contraindications for laparoscopic inguinal hernia repair.
- At the end of this course, learners will be able to perform the five-step sequence of cricothyroidotomy within 30 seconds on a partial task trainer.
- At the end of this course, learners will be able to write a plan for the introduction of bedside ultrasound in their practices.

On the Objectives worksheet, Course Chairs should list the learner-specific objectives that the course will fulfill, to include the specific operations, procedures, or skills to be taught and the essential tasks under each.

Course Location: Conference Center
Chair: Carla M. Pugh, MD, FACS Co-Chairs: John S. Roth, MD, FACS and Gina L. Adrales, MD, FACS

Objectives

List three to five course objectives. List the specific operations/procedures/skills to be taught and the essential tasks under each.

	Objectives
1	**Upon completion of this course**, learners will be able to apply laparoscopic approaches appropriately in their hernia surgery practices.
2	**Upon completion of this course**, learners will be able to able to discuss key surgical strategies for potential problems during hernia surgery.
3	**Upon completion of this course**, learners will be able to list indications, contraindications, techniques, and complications associated with laparoscopic inguinal and ventral hernia repair.
4	**Upon completion of this course**, learners will be able to discuss the benefits and risks of laparoscopic hernia repair.
5	**Upon completion of this course**, learners will be able to discuss the outcomes, costs and value of laparoscopy in hernia repair.

	Specific Operations and Procedures	Essential Tasks
1	Laparoscopic total extraperitoneal inguinal hernia repair	Trocar placement, adhesiolysis, hernia sac dissection, mesh placement
2	Laparoscopic ventral hernia repair	Trocar placement, adhesiolysis, hernia sac dissection, mesh placement
3		
4		
5		

Course Description

The skills course description briefly orients learners to the course by outlining the purpose, knowledge and skills to be learned, and principle learning strategies and activities. It includes:

- • First sentence: why (purpose or rationale for the course, with intended outcomes).
- • Second/third sentences: what (key content and skills to be learned).
- • Fourth sentence: how (learner activities, with emphasis on skills training).

Prerequisites must be clearly stated. Completion of initial skills courses or demonstration of a certain experience level may be essential for learner readiness to take advanced courses.

On the Description worksheet, Course Chairs should document the course description and any prerequisites to take the course.

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Course Description

In four sentences state the purpose for the course with intended outcomes, key content and skills to be learned, and learner activities, particularly for skills training.

The purpose of this course is to prepare surgeons to adopt laparoscopic approaches to inguinal and ventral hernia repair in their practices. Didactic content includes patient selection, procedural anatomy, operative techniques, postoperative care, and management of complications. Skills include trocar placement, adhesiolysis, hernia sac dissection, and mesh placement. Learners work in small groups with expert surgeons using hernia simulation models for laparoscopic repair.

Prerequisites

Other courses, demonstration of experience level

None

The course description should emphasize active learning in course construct, from objectives through instructional design and learner evaluation. Active learning is the process of dynamic or experiential engagement of learners in the learning process. It is learner-centered and enhances acquisition and retention of content and skills. Skills courses should be the ideal expression of active learning, yet skills course lectures can be a passive event with one-way content and little interaction even with questions/answers at lecture conclusion. Even the skills lab itself is at risk of more passive learning if an instructor "takes over" the dissection or technique. With active learning techniques, traditional teaching is transformed from facultylead to faculty-guided, and skills are practiced by doing. Interactivity, whether in groups or with individual learners, is the core concept.

Principles of active learning include:

- • Learners find purpose and relevance in tasks, with situation and complexity
- comparable to real life.
- • Learners are able to reflect on the meaning of what they are learning.
- • Learners have space to negotiate goals and methods of learning with the faculty.
- • Learners critically evaluate different ways of learning the content.

Skills courses are ideal for retention through discussion and practice by doing (Figure, Learning Pyramid). Converting lectures to discussions helps learners to think critically about the subject matter and verbalize their thinking relative to the content. Pauses in a lecture can be used for "think-pair-share," in which learners take a moment to reflect on the introduced content, review it with one or more peers, and discuss it with the class. This sharing of peer reflection enables faculty to clarify content and correct misconceptions. Whether in discussions or skills labs, videos that demonstrate the skills in vivo can help learners put skills in context, and audience response questions can focus learners on key concepts.

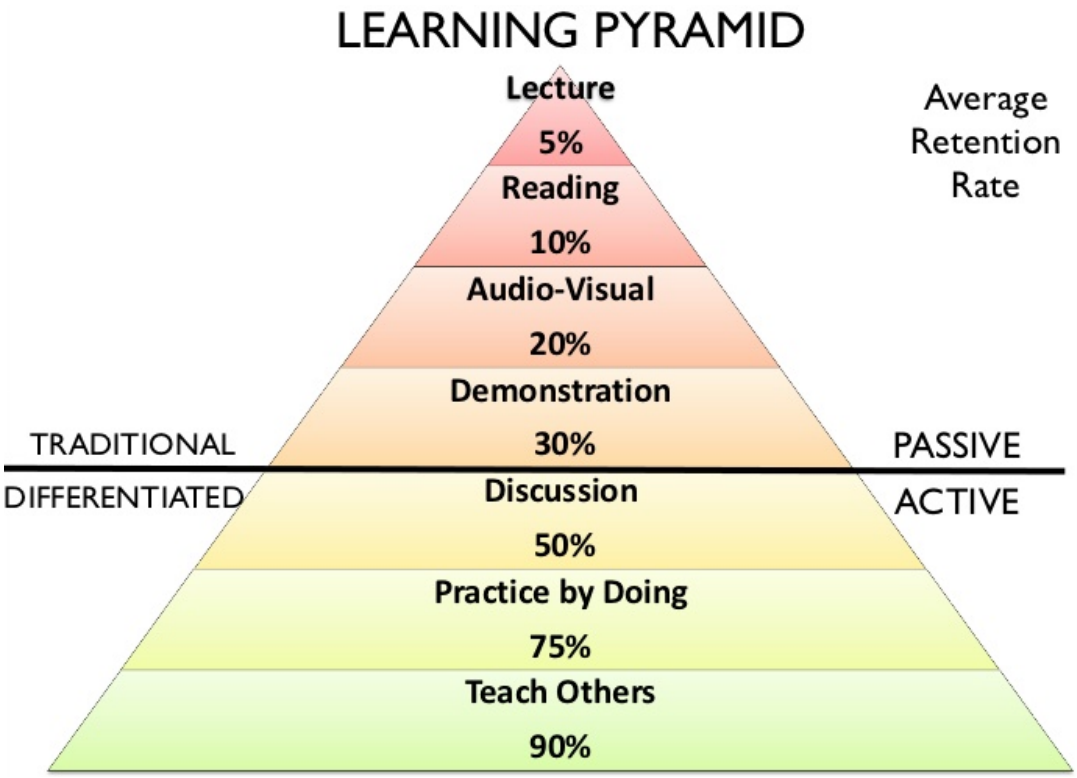

Figure: Learning Pyramid. Adapted from National Training Laboratories, Bethel, Maine.

Evidence Basis

Evidence-based content should be selected explicitly to fulfill the objectives. Information sources include review articles, practice guidelines, national prospective studies, surgical atlases, and expert opinion. The content should not be a bibliography, but rather, a select list of references that is the basis for the material presented. A risk with skills courses is that individual faculty "experience" becomes the primary content, which introduces variation in course delivery. Content should not be driven by anecdote.

The intended skills must be clearly defined, typically by operation and method (e.g., open, endoscopic, laparoscopic, or robotic). The operative indications, contraindications, and complications should be described, as well as pre- and post-operative considerations. Optimal resources for the conduct of the operation must be determined. The specific tasks within each operation should be identified, to include delineation of critical tasks. Such a task analysis enables a checklist that focuses faculty teaching and learner evaluation. Finally, patient safety considerations for prevention or early recognition, as well as quality performance measures, should be emphasized.

On the Evidence Basis for Course worksheet, Course Chairs should list the core texts, papers, and videos which serve as the content basis for the course. While some of these might be learner materials, they should represent the essential materials from which the faculty will teach.

Faculty

Course Chairs should select faculty with expertise in the skills being taught and in teaching, particularly with the intended simulation model(s). Having one faculty member local to the course venue is helpful for navigating local practices with the Course Chairs and facility staff. The learner to faculty ratio for small group discussion and skills stations must be clearly defined relative to the course objectives and resources. Skills station ratios vary from 2:1 to 5:1, with 4:1 being most common. Faculty must prepare to teach the course, and Course Chairs should facilitate faculty readiness with several conference calls for faculty orientation to the course objectives, content, agenda, skills stations, and assessment tools (pre/post-course multiple choice tests, pre/post-course learner self-assessments, and course report card). Descriptive anchors must be determined for the performance levels (below, at, or above expectations) for each skill. A skills calibration worksheet is useful to breakdown the tasks for each skill and provide anchors to guide instruction and assessment (see Learner Assessment below).

On the Faculty worksheet, Course Chairs should list the faculty members, institutions, and contact information. For recurring courses, Course Chairs should vary the faculty to promote inclusiveness and develop a cadre of instructors.

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Evidence Basis

List three to five core texts, papers, and videos which serve as the content basis for the course.
This is not a bibliography.

1	Lal P, Kajla RK, Chander J, Ramteke VK. Laparoscopic total extraperitoneal (TEP) inguinal hernia repair: Overcoming The Learning Curve. Surg Endosc. 2004 Apr;18(4):642-5.
2	Bencini L, Sánchez LJ. Learning Curve For Laparoscopic Ventral Hernia Repair. Am J Surg. 2004 Mar;187(3):378-82.
3	Perrone JM, Soper NJ, Eagon JC, Klingensmith ME, Aft RL, Frisella MM, BruntLM. Perioperative Outcomes and Complications of Laparoscopic Ventral Hernia Repair. Surgery. 2005 Oct;138(4):708-15; discussion 715-6.
4	Salameh JR, Sweeney JF, Graviss EA, Essien FA, Williams MD, Awad S, Itani KM, Fisher WE. Laparoscopic Ventral Hernia Repair During The Learning Curve. Hernia. 2002 Dec;6(4):182-7.
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Learner Materials

List the specific material (and distribution method) for pre-course didactic work

	Material	Pre-course, Course, or Post-course	Method of Distribution
1	None		
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Instructional Design

Content is delivered to fulfill course objectives through deliberate design of instruction, which includes prerequisites, pre-course work, course discussions and skills stations, and postcourse reflection. Skill acquisition occurs in three phases:

- Cognitive phase, in which learners gain an understanding of the skills and essential tasks through explanation and faculty demonstration.
- Associative phase, in which the learner practices the task and eliminates errors fromperformance.
- Autonomous phase, in which the learner is able to perform the skills relatively autonomously with decreased cognitive input.

Skills courses focus on the cognitive and associative phases, while the autonomous phase is achieved through deliberate practice. The learning trajectory to reach this last phase depends on the complexity of the skill, the relative novelty of the skill compared to commonly performed procedures, and the frequency of practice.

Pre-course didactic work: Materials curated by the Course Chairs and distributed electronically are particularly useful for initial knowledge acquisition and framing the course for learner relevance. Key content articles, manuals, and videos (to include the Cine-Med ACS video library, available at https://cine-med.com/acs, user name and password available from ACS Surgical Skills Team) help learners engage in the course material remotely in anticipation of in-person activities. Expectations for completion of pre-course work must be clearly set (i.e., essential or optional).

On the Evidence Basis for the Course worksheet, Course Chairs should list learner materials and method of distribution pre-course, during the course, and/or post-course.

Agenda: The agenda includes didactic large group presentations and skills stations; small group discussions may also be used. The agenda must include a 15 minute break for every two hours of instruction. Eight-hour courses have two 15 minute breaks (one morning, one afternoon) and a one-hour lunch period.

Didactic presentations: Typically, these are PowerPoint presentations created by faculty using PowerPoint templates and guidelines on the faculty web link, Presentation Information Tab. These presentations must be uploaded to the Presentation site in September and reviewed by the Course Chairs. The following rules bear emphasis:

- PowerPoint is a visual medium, so more images than words are appropriate.
- Images should be referenced by source.
- Dark words on light background are preferred.
- Word font should be no smaller than 28, with a maximum of three lines per slide.
- Time for a PowerPoint presentation should be guided by one slide per minute (e.g., 20 slides = 20 minutes).
- Industry created slides are not permitted.
- To maintain compliance with the Federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), there must be no Protected Health Information (PHI) in any written or verbal presentation materials. PHI includes patient names, locations, biometric identifiers, full or partial facial photographs, and any other unique identifying number, characteristic, or code. Particular care must be taken with clinical images.

Skills stations: Skills stations are created to fulfill the hands-on objectives. Some courses have different skills stations and a rotational scheme, while others have multiples of the same skills station. A floor plan of the course site is helpful to map learner flow and theskills stations.

Careful reflection must be given to the simulation models that will be used, in terms of fidelity to the clinical use of skills to be taught, the cost of the model, and the resources for use of the model. As much as possible, each skill station should "suspend disbelief" with the simulation model and promote clinical realism. Skills should be taught as a standard sequence of tasks, with focus on essential tasks. Delineation of tasks on a poster may be useful at each skill station.

On the Agenda and Skills Stations worksheets, Course Chairs should list the course components (didactic presentations and skills stations) by topic, assigned faculty, and time (CME and non-CME).

Contemporary Strategies for Minimally Invasive Hernia Repair
Date: 10/16/2020 | Time: 8:00 - 5:30
8.0 CME Hours
Course Location: Conference Center
Chair: Carla M. Pugh, MD, FACS Co-Chairs: John S. Roth, MD, FACS and Gina L. Adrales, MD, FACS

Faculty:	Lecture	Skills Station

Order	Lecture or Skills Station	Name & Complete Credentials	Length (min)	Start Time	End Time
1					
2					
3					
4					
5					
6					
7					
8					
9					
10	**Break One**				
11					
12					
13					
14					
15					
16					
17					
18	**Lunch**				
19					
20					
21	**Break Two**				
22					
23					
	Course Concludes				

Total Time:	**570**
CME Time:	**480**

For some skills courses, there is a format for lecture in the morning and skills lab in the afternoon. For other skills courses, lectures and skills labs are integrated throughout the course

For additional lectures or skills stations, add rows.

Contemporary Strategies for Minimally Invasive Hernia Repair
Date: 10/16/2020 | Time: 8:00 - 5:30
8.0 CME Hours
Course Location: Conference Center
Chair: Carla M. Pugh, MD, FACS Co-Chairs: John S. Roth, MD, FACS and Gina L. Adrales, MD, FACS

Simulation Model Synthetic Model (circle one): Specifications:	partial task trainer	human patient simulator
Number of Standardized Patients: None		
Tissue (circle one): cadaver (fresh, thawed, formalin; whole or part)		**animal tissue**
Specifications:		

Detailed Schedule for Skills Stations

# Skills Stations: 10	***# learners per station: 3***	***# of faculty per station: 1 (5 floaters)***

Order	Skills Station	Faculty Name	Length (min)	Start Time	End Time
1	Lab Orientation	Gina L. Adrales, MD, FACS	5	1:15 PM	1:20 PM
	5 Skills Station: Laproscopic Ventral Hernia Repair				
2	**Port Placement:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Michael K. Liang, MD FACS	15	1:20 PM	1:35 PM
3	**Adhesiolysis:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Ajita S. Prabhu, MD FACS	15	1:35 PM	1:50 PM
4	**Defect Measurement:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Archana Ramaswamy, MD, FACS	15	1:50 PM	2:05 PM
5	**Mesh Preparation:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Yuri W. Novitsky, MD, FACS	15	2:05 PM	2:20 PM
6	**Mesh Tacking:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Mercedeh Baghai, MD	15	2:20 PM	2:35 PM
7	**Participant Performance (all skills)**	John P. Fischer, MD, MPH	40	2:35 PM	3:15 PM
8	**Break Two**		15	3:15 PM	3:30 PM
	5 Skills Station: Laproscopic Inguinal Hernia (TEP)				
9	**Port Placement:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Konstantinos Spaniolas, MD	15	3:30 PM	3:45 PM
10	**Adhesiolysis:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Sharon L. Bachman, MD, FACS	15	3:45 PM	4:00 PM
11	**Defect Measurement:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Brian P. Jacob, MD, FACS	15	4:00 PM	4:15 PM
12	**Mesh Preparation:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Alisa M. Coker, MD	15	4:15 PM	4:30 PM
13	**Mesh Tacking:** Faculty Demonstration & Discussion; Rules; Errors; Tricks; Techniques; Errors	Vedra A. Augenstein, MD FACS	15	4:30 PM	4:45 PM
14	**Participant Performance (all skills)**	I. Michael Leitman, MD, FACS David M. Krpata, MD, FACS	40	4:45 PM	5:25 PM
15	**Course summary**	Carla M. Pugh, MD, FACS	10	5:25 PM	5:30 PM

Pre-Test/Post-Test: Four multiple choice test questions must be submitted per CME hour: for an 8-hour course, 32 questions, for a 6-hour course, 24 questions, and for a 4-hour course, 16 questions. The pre-/post-test questions are the same, randomized between the tests. Test questions should reflect the course learning objectives and content. Key guidelines include:

- All test questions are multiple choice questions with one correct answer and three distractors (false responses).
- "All of the above" and "none of the above" are unacceptable responses.
- Questions should not depend on information from another question.
- •25% of the total number of questions per test must be case-based.
- Images, charts, and graphs (without Protected Health Information) may be included with the questions.

The Chapter Appendix includes "How to Write or Review Multiple Choice Questions."

Chairs may solicit questions from faculty speakers (two to four questions related to their presentation) or submit questions themselves. Either way, Course Chairs should review all questions to ensure consistency with course objectives and content.

Learners complete the pre- and post-tests on-line via a link from the ACS Surgical Skills Team.

Learner Report Card: This consists of the combined Pre-Course Learner Self-Assessment Survey, the Hands-on Skills Faculty Assessment, and the Post-Course Learner Self-Assessment.

Pre-Course Learner Self-Assessment Survey: The survey helps define learner expectations and learning goals, motivation and readiness for change, and baseline practice characteristics (operative volume, setting, facility resources, team, and degree of surgeon collaboration in the facility and community). Further, it determines a baseline of learner confidence in course skills, which is then compared with the learner's post-course confidence assessment. Collated results of the pre-course survey should be shared with the faculty prior to the course.

Hands-on Skills Faculty Assessment: Skills are assessed at each skills station by faculty per task and overall. To ensure minimal variation in learner assessment, faculty should conduct a skills calibration exercise to define observable behaviors that reflect each level of task performance. A 1-5 scale describes observed performance based on expectations (1 = did not meet expectations, 3 = met expectations, 5 = above expectations).

Learner Assessment

Post-Course Learner Self-Assessment Survey: The survey repeats the Learner Confidence Assessment and includes questions to stimulate learner reflection on next steps to apply the skills learned in the course.

The Course Chairs must create the Learner Confidence Assessment component of the Pre-/Post-Course Learner Self-Assessment Surveys, as well as the Skills Station Tasks with skills calibration. A completed example Learner Report Card is found in Appendix 4.

ACS Clinical Congress Registration #_____

Learner Name _____

Specialty _____

Pre-Course Self-Assessment

1. What is your current practice (scope of operations, annual operative volume, clinical setting)?
2. Why are you taking this course?
3. How do you plan to apply the skills that you will learn in this course (include facility, team, and collegial support)?

Pre-Course Confidence Assessment (to be completed by the learner)

Rate your current level of confidence in being able to demonstrate the tasks under the following Surgical Skills Stations.

	No Confidence 1	Low Confidence 2	Moderate Confidence 3	High Confidence 4	Complete Confidence 5
Skills Station 1: Add Title	◯	◯	◯	◯	◯
Skills Station 2: Add Title	◯	◯	◯	◯	◯
Skills Station 3: Add Title	◯	◯	◯	◯	◯
Skills Station 4: Add Title	◯	◯	◯	◯	◯

ACS Clinical Congress Registration #_____

Learner Name _____

Hands-On Skills Assessment (to be completed by the faculty)

Faculty Note: Report cards MUST be returned at the end of the course.

Learner assessment by faculty on defined skill stations tasks

(1 = Beginner; 2 = Transitional; 3 = Competent; 4= Proficient; 5= Expert)

Station 1: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
1.		1	2	3	4	5
2.		1	2	3	4	5
3.		1	2	3	4	5
4.		1	2	3	4	5
5.		1	2	3	4	5

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.	1	2	3	4	5

_____ _____

Faculty Name Faculty Signature

Station 2: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
6.		1	2	3	4	5
7.		1	2	3	4	5
8.		1	2	3	4	5
9.		1	2	3	4	5
10.		1	2	3	4	5

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.	1	2	3	4	5

_____ _____

Faculty Name Faculty Signature

Station 3: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
11.		1	2	3	4	5
12.		1	2	3	4	5
13.		1	2	3	4	5
14.		1	2	3	4	5
15.		1	2	3	4	5

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.	1	2	3	4	5

_____ _____

Faculty Name Faculty Signature

Station 4: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
16.		1	2	3	4	5
17.		1	2	3	4	5
18.		1	2	3	4	5
19.		1	2	3	4	5
20.		1	2	3	4	5

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.	1	2	3	4	5

_____ _____

Faculty Name Faculty Signature

Station 5: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
21.		1	2	3	4	5
22.		1	2	3	4	5
23.		1	2	3	4	5
24.		1	2	3	4	5
25.		1	2	3	4	5

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.	1	2	3	4	5

_____ _____

Faculty Name Faculty Signature

ACS Clinical Congress Registration #_____

Learner Name _____

Specialty _____

Post-Course Self-Assessment (to be completed by the learner)

Rate your current level of confidence in being able to demonstrate the tasks under the following Surgical Skills Stations.

	No Confidence 1	Low Confidence 2	Moderate Confidence 3	High Confidence 4	Complete Confidence 5
Skills Station 1: Add Title	◯	◯	◯	◯	◯
Skills Station 2: Add Title	◯	◯	◯	◯	◯
Skills Station 3: Add Title	◯	◯	◯	◯	◯
Skills Station 4: Add Title	◯	◯	◯	◯	◯

Post-Course Self-Assessment

1. What skill(s) from this course do you feel you can apply independently?
2. For what skill(s) from this course do you feel you need additional training or assistance before applying in your practice?
3. What first step do you intend to take to apply the skills from this course in your practice?

Pre-Course Skills Calibration (to be completed by the Course Chairs with faculty)

Pre-course, define what constitutes each level of task performance based on observable behaviors.

Station 1: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
1.						
2.						
3.						
4.						
5.						
		Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.						

Station 2: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
6.						
7.						
8.						
9.						
10.						
		Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.						

Station 3: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
11.						
12.						
13.						
14.						
15.						
		Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.						

Station 4: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
16.						
17.						
18.						
19.						
20.						

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.					

Station 5: Title						
	Tasks	Beginner	Transitional	Competent	Proficient	Expert
21.						
22.						
23.						
24.						
25.						

	Beginner	Transitional	Competent	Proficient	Expert
Overall performance of candidate on combined skills.					

Course Evaluation

Learners assess their experience in the course using the standard ACS on-line course evaluation form. Three areas are reviewed:

1. **Content:** Did the content reflect the learning objectives? Did the didactic content reinforce skill development? Did the course teach the intended skills?
2. **Delivery:** Was the environment conducive to learning? How well did the faculty teach in learner terms? Were the skills stations resourced for learning the skills?
3. **Bias:** Was there bias toward a particular company or industry in general?

Chapter Appendix

- Writing Effective Objectives Using Bloom's Taxonomy, ACS Division of Education
- About Multiple Choice Questions

Writing Effective Objectives Using Bloom's Taxonomy, ACS Division of Education

ACS AMERICAN COLLEGE OF SURGEONS

Writing Effective Learning Objectives Using Bloom's Taxonomy

American College of Surgeons | Division of Education

Why do we require Learning Objectives?

Learning objectives...

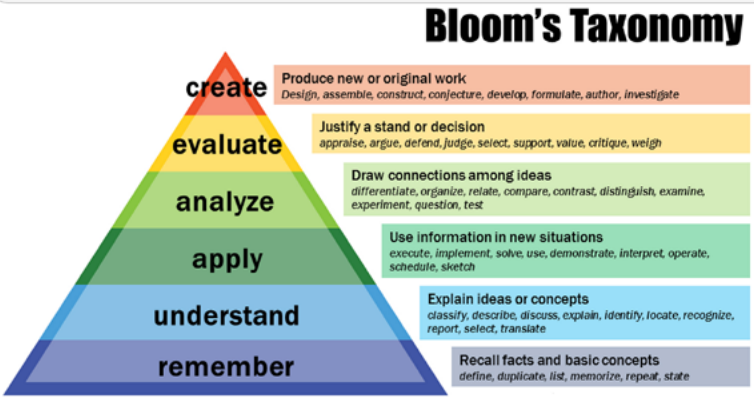
- Communicate the purpose of a learning activity
- Define observable learning outcomes to achieve in the activity
- Help focus the teaching, learning, and evaluation
- Provide a basis for educational activities to offer CME credits

How is a learning objective constructed?

- Objectives contain a single verb and its object. The verb describes an observable action.
- Objectives can be written at Bloom's six levels of learning, with rote memorization being the lowest level and creative thinking being the highest level
- Aim to write learning objectives at the highest level that can be realistically achieved through the learning activity

Using Bloom's Taxonomy in Learning Objectives

- Bloom's Taxonomy is hierarchical, meaning that learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels (see diagram below).
- Educators can use "verb tables" to identify which action verbs align with each level in Bloom's Taxonomy. Sample verbs are provided in the table on the right as suggestions for objectives at each of Bloom's 6 levels of learning. An example is given of a complete objective at each level.



Using Bloom's Taxonomy in Learning Objectives

Bloom's Level	Key Verbs	Learning Objective Examples
Create	generate, plan, design, formulate, build, invent, compose, produce, derive, modify, develop.	*By the end of this session, learners will be able to formulate an original surgical treatment plan for obese patients.*
Evaluate	check, test, detect, monitor, critique, support, judge, grade, argue, justify, support, convince.	*By the end of this session, learners will be able to determine whether using gastric bypass, sleeve gastrectomy, adjustable gastric band, or biliopancreatic diversion with a duodenal switch is the best form of bariatric surgery.*
Analyze	differentiate, select, organize, classify, outline, break down, categorize, diagram, simplify, associate.	*By the end of this session, learners will be able to differentiate between the following bariatric surgeries: gastric bypass, sleeve gastrectomy, adjustable gastric band, or biliopancreatic diversion with a duodenal switch.*
Apply	execute, implement, calculate, predict, solve, use, demonstrate, determine, model, perform, present.	*By the end of this session, learners will be able to execute gastric bypass surgery.*
Understand	describe, explain, exemplify, illustrate, paraphrase, restate, clarify, represent, translate, give original examples of, summarize, compare, interpret, infer, discuss.	*By the end of this session, learners will be able to describe 4 common types of bariatric weight loss surgery.*
Remember	list, recite, outline, define, name, match, quote, recall, identify, label, recognize, retrieve.	*By the end of this session, learners will be able to identify the 4 common types of bariatric weight loss surgery.*

About Multiple Choice Questions

Adapted from "How to Write or Review Multiple Choice Questions," ACS Division of Education

A standard multiple choice question has the following components:

- Stem
- Lead-in question
- Series of four answer choices: one preferred, three distractors

Example

Stem	A 20 year-old-man sustains a stab wound to his right anterior neck. He is awake and alert. Your exam demonstrates a 1-cm laceration medial to the right mid-sternocleidomastoid muscle, with a large pulsatile hematoma. You secure his airway and proceed to the operating room for neck exploration.
Lead-In	What is most appropriate surgical incision?
Choices	Collar (distractor) Median sternotomy (distractor) **Sternocleidomastoid** (correct answer) Supraclavicular (distractor)

Effective multiple choice questions:

- Measure learner performance to explicit learning objectives
- Test application of knowledge using clinical vignettes.
- Are answerable without looking at the answer choices.
- Contain plausible distractors
- Include answer choices on a continuum between "least correct" and "most correct."

Effective multiple choice questions do not include:

- Absolutes (e.g., always, never, all or none of the above).
- Vague terms (e.g., usually or frequently).
- Negative wording in the lead-in (e.g., All of the following are correct EXCEPT, Which of the following is NOT correct).
- Esoteric topics or complex wording.
- Verbatim textbook phrases.
- Word repeats between the stem and the correct answer.
- Longer or more specific correct answer relative to the distractors.

Case-based questions in skills courses should focus on the application of technical skills, to include indications, contraindications, exposures, critical steps, and contingencies.

Chapter 3

Meeting Continuing Medical Education Requirements

ACS Education
American College of Surgeons

Chapter 3: Meeting Continuing Medical Education Requirements

Skills courses must be designed to meet accreditation standards for Category 1 continuing medical education (CME) credit through the ACS. CME credits are designated in 15-minute time increments as determined by review of the approved course agenda. The CME process is designed to verify learner-centered course creation to standards of adult education and to prevent conflicts with individual, organizational, and commercial interests. All ACS Clinical Congress skills courses are covered by one comprehensive CME approval that follows a clear timeline of actions before, during, and after the surgical skills course. Given the requirements for a quality course with CME approval, it is essential to begin planning in January.

The CME process moves through the following steps:

1. The completed Course Proposal, Gap Analysis, and Skills course templates fulfill the requirements of the CME Activity Form. It is particularly important to identify the planned verification level and anticipated commercial support (any "financial or in-kind contribution given by a commercial interest, which is used to pay all or part of the costs of a CME activity"). Commercial support requires a signed Letter of Agreement (LOA) from each commercial interest before the start of the course. Note that skills courses do not use commercial promotion, defined as any financial contribution, given by a commercial interest that includes promotion and or marketing. Product promotion material or product-specific advertisement of any type is prohibited in, immediately outside, or during CME activities.
2. In January before the course, the Course Chair and Co-Chair receive invitations and complete the following forms before any planning calls:
   - ACS Response
   - Annual Disclosure
   - Media Rights
   - Audiovisual Requirements
   - Biography

   An initial conference call with the Course Chairs and ACS Surgical Skills team must occur. The Course chair completes the faculty list, to include faculty e-mail addresses, and faculty invitations are sent.
3. In February before the course, the Course Chair completes the Skills Course Planning Workbook, which includes the Agenda worksheet. This worksheet assigns each instructional element to specific faculty with specific times, and CME credit hours are determined by this agenda (the Workbook also includes worksheets for Skills Stations and Station Logistics). For self-assessment credit, the Chairs and/or faculty must create four multiple-choice questions per CME credit hour.
4. By April before the course, invited faculty must confirm participation and complete the ACS Annual Disclosure of Financial Relationships Forms. These are reviewed by the Course Chairs in early May.
5. In May before the course, a conference call with the Course Chairs, course faculty, and ACS Surgical Skills team must occur.
6. In July before the course, Course Chairs and faculty must submit the learner selfassessment, handout(s), pre-course reading, multiple-choice questions (four questions per hour of CME), and report card.
7. In September before the course, course presentations must be uploaded by the Course Chairs and faculty in the Clinical Congress presentation portal.

8. On the day of course, the Course Chairs ensure that the objectives, accreditation statement, AMA credit and other statements, and disclosure list are clearly delivered to the participants.
    a **Accreditation Statement:** The American College of Surgeons is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.
    b **AMA PRA Category 1 Credit Statement:** The American College of surgeons designates this live activity for a maximum of XX AMA PRA Category 1 Credit. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
    c **Disclosure Information Paragraph and List:** In compliance with the ACCME Accreditation Criteria, the American College of Surgeons must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the complete disclosure list available for review at thiscourse.
9. At course conclusion, the Course Chair verifies the participant attendance list with CME contact hours, as well as participant understanding about how to complete the post-course evaluation and post-test for self-assessment if applicable.
10. Within two months of course conclusion, a **post-course survey** is distributed electronically to all course learners by e-mail or survey tool. This survey assesses how the course material has been applied by the participant in practice.
11. Within four months of course conclusion, a **final report** is generated that summarizes participant attendance, performance, course evaluation, and post-course surveys. This report is sent to the Course Chairs and faculty.

Chapter 4
Surgical Skills Course Resources

ACS Education
American College of Surgeons

Chapter 4: Surgical Skills Course Resources

Personnel

1. Chair and Co-Chair

The Course Chair and Co-Chair, in collaboration with ACS Division of Education Skills Course Team, plan and implement a high-quality surgical skills course for learners. The Chairs have overall responsibility for course design that addresses the defined gaps: they determine the learning objectives, educational content and skills to be taught, and instructional methods. Regular planning meetings with the Chairs and ACS Surgical Skills Team are expected.

Chairs are named in the course proposal and reviewed by the Program Committee. Qualifications include expertise in teaching the targeted skills, ability to convey knowledge in learner-centered ways, and commitment of time for course planning, preparation, and delivery.

Specific responsibilities are best described in a timetable for skills course development (document templates are bolded):

- **January**
  - Participate in course kick-off conference call.
  - Complete the first four tabs of the Skills Course Planning Workbook, which include the Needs Assessment, Objectives, Description and Evidence Basis worksheets.
  - Complete ACS Marketing Brief.
- **February**
  - Participate in second conference call with ACS Surgical Skills team.
  - Complete next 4 tabs of the Skills Course Planning Workbook, which include the Faculty, Agenda, Skills Stations and Station Logistics worksheets.
- **March—April**
  - Continue monthly and as needed conference calls with ACS Surgical Skills Team.
  - Review last tab of the Skills Course Planning Workbook, Budget worksheet, with the ACS Surgical Skills Team.
  - Determine pre- and post-course learning activities.
- **May**
  - Reconcile conflict of interest disclosures by faculty.
  - Conduct conference call with faculty and ACS Surgical Skills Team.
  - Collect and review self-assessment questions from faculty (four multiple-choice questions per CME credit hour).
- **July**
  - Finalize self-assessment questions.
  - Develop hands-on skills learner report card.
  - Submit course materials (learner self-assessment, handouts, pre-course reading) to ACS Surgical Skills Team.

- **August**
  - Assess course registration by Course Chairs and ACS Surgical Skills Team.
- **September**
  - Upload presentations to Clinical Congress presentation portal.
  - Conduct pre-course conference call with faculty and ACS Surgical Skills Team.
  - Reassess course registration by Course Chairs and ACS Surgical Skills Team.
- **October**
  - Reassess course registration by Course Chairs and ACS Surgical Skills Team.
  - Preview skills course space and skills station set-up with ACS Surgical Skills Team.
  - Lead skills course (must be present for the entire course duration).
- **November—December**
  - Participate in post-course debriefing conference call with ACS Surgical Skills Team.
  - Implement follow-up for post-course learning activities.

2. Faculty

Faculty are selected by the Course Chairs principally as hands-on instructors. Some faculty may also have speaker roles--there should be no speakers separate from hands-on faculty. Selection reflects expertise in course topics, skills, and collegial teaching, as well as support for diversity and inclusion in Clinical Congress faculty. Course faculty should be Fellows or Associate Fellows of the College. Exceptions may be made for surgeons in training or physicians from adjacent clinical disciplines—these individuals must bring a unique skill or perspective to the skills course experience for the learner. Exceptions must be approved by the Division of Education. Faculty teaching in ultrasound courses should be members of the National Ultrasound Faculty (NUF).

After accepting the invitation to teach, specific faculty responsibilities include:

- Completing the ACS Disclosure Form and working with Chairs to resolve conflicts of interest. All affirmative disclosures are revealed by a slide at the beginning of the applicable faculty presentation. Failure/refusal to disclose or inability to resolve an identified conflict will result in the withdrawal of the invitation to participate.
- Completing the ACS Media Rights agreement, which gives ACS permission to record and disseminate Clinical Congress presentations (including the delivery, text, and any incorporated visual and electronic images) via a variety of media in exchange for acknowledgement of the faculty member as the author in all distributed materials and faculty use of the presentation in any manner. Faculty acknowledge that (a) no part of the presentation infringes upon any copyright or other intellectual property or proprietary right of any third party; (b) appropriate permission has been obtained to reprint any portion of the presentation of which the faculty is not the author; and (c) the rights granted to the College in the agreement have not previously been disposed.
- Participating in pre-course conference calls.
- Preparing self-assessment multiple choice questions based on the agenda and materials as requested by the Course Chairs.
- Teaching at the course, to include active participation throughout the course and review of the skills station at least one hour before the skills session starts. Faculty in an off-site course should take the group bus and attend the entire course.
- Completing the hands-on skills report card for learners at respective skills stations.

3. ACS Surgical Skills Team

The ACS Surgical Skills Team from the Division of Education manages the mechanics of skills course timelines, budgets, meetings, and delivery.

4. Course Chair and Faculty Registration and Reimbursement

Course Chairs and hands-on faculty receive complimentary Clinical Congress Registration (which does not include access to other paid courses at the Congress) and are eligible for reimbursement of one-night hotel stay (up to $300 total). Other expenses (e.g., airfare, ground transportation, and meals) are not reimbursed, and honoraria are not offered. Clinical Congress registration is handled by ACS Registration Services staff in advance of the meeting, with confirmation e-mails sent by the end of August.

Facility

1. Location

The location of the skills course is determined by the ACS Surgical Skills Team and the Course Chairs and depends on specific course requirements, particularly the simulation model. Courses using inanimate simulators or live patient models are most commonly located in the Convention Center, whereas those using tissue (e.g., cadaver or animate) are conducted at a proximate ACS Accredited Education Institute, university anatomy lab, or other simulation center. The ACS Surgical Skills Team arranges off-site group transportation.

2. Space and Setup

The course environment has a significant impact on learner and faculty engagement. Appropriate space for didactic sessions, hands-on skills and breaks must be mapped by the ACS Surgical Skills Team with the Course Chairs.

- Didactic: Classroom style layout with tables and Chairs facing a front podium is ideal. If projection will be used, the space must be able to adjust for light, to include window coverings. Classroom equipment should include:
  - Windows Desktop computer at the podium with monitor and mouse
    - Intel i7 Processor with 4GB RAM
    - Windows 10
    - MS Office 2016
    - Adobe Acrobat Reader
    - Windows Media Player
    - Quick Time Player
  - One data/video projector
  - One front-projection screen with 16:9 display aspect ratio
  - Confidence monitors at podium and head table
  - Laser pointer
  - Microphones (handheld or lavalier)

  Additional room set-up and audiovisual requests can be made by the Course Chairs via the Audio Visual form located in the Chairs web link.

- Hands-on: A floor plan for the skills lab and skills station layout should be created to visualize space and instructional flow. The skills lab must have space for the number of required skills stations and movement for learners, faculty, and Course Chairs at and between stations. Each skill station must be designed to accommodate the simulator model, instruments, equipment, and supplies. There is greater latitude with skill station design in the Convention Center than in off-site facilities.

- Changing rooms: These are dependent on the facility and are needed for courses that use tissue models. Scrubs and lockers must be provided to accommodate all learners, faculty, and Course Chairs.
- Breaks: Food, refreshments, and coffee may be served in the classroom area, yet not in the skills lab area.
- Faculty ready room: While optional, this space enables faculty to review presentations and discuss course dynamics with other faculty.

Logistics

Simulating a skills station is a useful way to verify the necessary complement of simulators, tables, equipment, instruments, and supplies, following the task analysis of the skills/procedures to be taught. The Station Logistics worksheet of the Skills Course Planning Workbook requires thoughtful detail to ensure ready skills stations and emphasizes the need to determine the source of material.

- *Simulators*: The simulator model must be clearly defined, along with simulator support needs.
  - *Inanimate*: partial task trainers, human patient simulators
  - *Live patient models*
  - *Tissue*: human cadaver (fresh, thawed, formalin; whole or part; previous or no surgeries), animal part(s)
- T*ables and lighting*: Simulators require physical support, from rectangular office tables to operating tables. Table height variation may be important for learner engagement. Lighting is another factor for engagement and varies from ambient to headlamps and OR lights.
- *Instruments and equipment*: Defining an essential instrument tray per skills station reduces instrument requirements and clutter. The need for self-retaining retractors is commonly under-appreciated in tissue labs. Equipment to support the skills training might include electrocautery, endoscopes, laparoscopic towers or robots.
- *Supplies*: The need for scrubs and personal protective equipment (PPE), both type, size, and quantity, must be assessed. Tissue labs require appropriate scrubs and PPE for Course Chairs, faculty, learners, and support staff (one set for each session), while most skills stations need ample gloves to replicate conditions under which the skills are performed in patients. Supplies for skills include suture/needle, free ties, clips, and disposable instruments. Mapping supplies to the procedure task analysis quantifies the total requirement per learner at each skill station.

Contemporary Strategies for Minimally Invasive Hernia Repair
Date: 10/16/2020 | Time: 8:00 - 5:30
8.0 CME Hours
Course Location: Conference Center
Chair: Carla M. Pugh, MD, FACS Co-Chairs: John S. Roth, MD, FACS and Gina L. Adrales, MD, FACS

Simulation Model Synthetic Model (circle one): partial task trainer human patient simulator Specifications:
Number of Standardized Patients: XX
Tissue (circle one): cadaver (fresh, thawed, formalin; whole or part) **animal tissue**
Specifications:

(Please enter the list of equipment needs by station)

INSERT - Station Name and Type of Procedure							
		Equipment		**Durable Instruments**		**Disposables**	
Vendor	**Equipment, Durable Instruments, and Disposables**	**Model Number**	**Total per station**	**Instrument Size**	**Quantity per station**	**Instrument Size**	**Quantity per station**
Karl Storz Endoscopy	Fully equipped endoscopic towers		1				
	· Light source with cable		1				
	· Camera box (with Aida videocapture system)		1				
	· C02 insufflator with tubing		1				
	· Monitor		1				
	10 mm scopes (0 degree scopes and 30 degree scopes)		1				
	5 mm scopes (0 degree scopes and 30 degree scopes)		1				
INSERT - Station Name and Type of Procedure							
		Equipment		**Durable Instruments**		**Disposables**	
Vendor	**Equipment, Durable Instruments, and Disposables**	**Model Number**	**Total per station**	**Instrument Size**	**Quantity per station**	**Instrument Size**	**Quantity per station**
Stryker Endoscopy	Fully equipped endoscopic towers		1				
	· Light source with cable		1				
	· Camera box (with Aida videocapture system)		1				
	· C02 insufflator with tubing		1				
	· Monitor		1				
	10 mm scopes (0 degree scopes and 30 degree scopes)		1				
	5 mm scopes (0 degree scopes and 30 degree scopes)		1				
INSERT - Station Name and Type of Procedure							
		Equipment		**Durable Instruments**		**Disposables**	
Vendor	**Equipment, Durable Instruments, and Disposables**	**Model Number**	**Total per station**	**Instrument Size**	**Quantity per station**	**Instrument Size**	**Quantity per station**
Ethicon	ENDOPATH 5MM CURVED DISSECTOR	5DCD			1		
	ENDOPATH 5MM CURVED GRASPER	5DSG			1		
	ENDOPATH 5MM CURVED SCISSORS	5DCS			1		
	ULTRAPRO ADVANCED MESH 10 X 15CM	UPA31015					1
	ETHICON SECURESTRAP	STRAP25					1
	ULTRAPRO ADVANCED MESH 15 X 30CM	UPA1530					1
	Curved Kelly Hemostat, 5.5"	34-4021					1

Chapter 5
Surgical Skills Course Business Plan

ACS Education
American College of Surgeons

Chapter 5: Surgical Skills Course Business Plan

The business plan for a surgical skills course is an explicit delineation of revenue and resources required to meet course objectives and course delivery. Included is a clear statement regarding assumptions, a budget, and a marketing plan. Surgical skills courses must be at least budget neutral relative to direct ACS resources. The business plan is an important reality check for the market viability of the surgical skills course.

Budget

The course budget balances anticipated revenues with expenses. The Budget worksheet is completed by the ACS Surgical Skills Team and helps Course Chairs to visualize finances andtrade-offs in conducting a course.

1. **Revenue** has two sources, registration fees and commercial support. Registration fees typically comprise 75% of revenue (range 70%-82%), with commercial support at 25% (range 18%-30%).

   - Registration fees are paid by course participants and range from $400 to $1,600. Market analysis should define potential participant interest in the course based on previous course history, course availability, and comparison with other course options. A minimum and maximum number of learners must be defined explicitly (e.g., 12—32). The number of learners may be capped by the maximum number of stations and the maximum number of learners per station.
   - Commercial support from industry includes in-kind contributions and unrestricted educational grants (through the ACS Foundation). Multiple companies may contribute grant and in-kind support to a course. Grants may be used to offset course expenses, such as facility rental costs (simulation center or convention center), simulation model purchases, A/V equipment rental, WiFi service, catered meals, medical equipment, disposable supplies (e.g., instruments, sutures), and printing costs. In-kind contributions may include disposable supplies and loaning of durable medical instruments and equipment (e.g., laparoscopic towers, robots). Antecedent course director, faculty, and ACS relationships with industry are helpful for prompting commercial support.

     All grant proposals must be submitted by the ACS Surgical Skills team, who ensure compliance with each company's processes and deadlines for grant submission. Most companies use an on-line application. Grant/in-kind contribution approval must be codified in a Letter of Agreement (LOA) with each company. The LOA must indicate unrestricted use, precise financial and in-kind contributions, and absence of commercial presence at the course. It is critical that the list of intended supplies and equipment be as specific as possible, to include type and number. Commercial support is distinct from commercial promotion (financial contribution that includes promotion or marketing), which must not be requested for surgical skills courses.

     The value proposition for industry support through unrestricted grants and in-kind contributions is surgeon acquisition of skill sets that will need support for use at the home institution. Companies are recognized for unrestricted educational grants/in-kind contributions in the ACS Program Book and Clinical Congress News, as well as verbally by the Course Chair at the start of the course.

2. **Expenses** include the direct costs of conducting the course, as well as ACS overhead and faculty preparation time before the course. Only direct expenses are included in the budget. Course instructional design drives direct resource requirements.

Direct expenses

- **Facility:** Considerations include space (classroom and surgical skills stations), setup, technical support, and proximity to the Clinical Congress convention center. Depending on the simulation model, some courses may need to be conducted offsite in an ACS-Accredited Education Institute or other surgical education center. Expenses may be bundled, depending on the facility, and include:
  - Facility/room, furnishing, and equipment/skills lab rental
  - AV rental (projection, computer, screen, technician), utility (i.e., electricity), and internet
  - Surgical technicians and facility support personnel
  - Room monitors and security
  - Group transportation (if using a remote facility)
- **Supplies:** The surgical skills station is the essential vehicle for course delivery and must be clearly described. Each has a corresponding expense (though some may be in-kind contributions):
  - Simulation model/support (cadavers—whole body, torso, and extremity), non-human tissue, standardized patients, and task trainers)
  - Table, lighting, and equipment
  - Non-disposable instruments
  - Disposable instruments, suture, supplies, drapes, and personal protective equipment
  - Biowaste and sharps disposal
- **Hands-on Faculty:** The number of hands-on faculty members needed is based on the expected number of learners and the planned faculty-to-learner ratio. Faculty expenses include:
  - Complimentary Clinical Congress registration
  - One night hotel stay up to $300 total.
  - Note: faculty honoraria are not provided.
- **Hospitality:** Expenses relate to meals for each participant and faculty member.
  - Continental breakfast for off-site courses
  - Coffee break
  - Boxed lunch
- **Business services:**
  - Virtual meetings/conference calls for course planning
  - Course material
  - Payment processing fees
  - Postage/freight charges
  - On-site photocopier/printer use
  - o On-site office supplies
- **Marketing:**
  - General Clinical Congress marketing attribution (e.g., Program Planner and Program Book)
  - Specific marketing

Indirect expenses

Course creation and delivery require an investment of staff and volunteer (course director and faculty) time. These should be considered in the business plan to ensure recognition of the time commitment.

- Overhead percentage for ACS Division of Education staff administration (allocation of shared staff costs across the portfolio of skills courses)
- Course director planning and preparation time
- Faculty preparation time

Marketing Plan

Course marketing is guided by the ACS Marketing Brief. Marketing involves more than a course listing in the Clinical Congress Program Planner and Program Book. A comprehensive approach promotes clarity and creates opportunity for a surgical skills course through the following components:

- Marketing objective(s)
  - Increase registration
  - Introduce new course
  - Generate revenue to meet direct costs
- Target audience
  - Individuals (practicing surgeons, surgical specialists, residents)
  - Surgical teams
- Benefits to Audience
  - Enhanced surgical practice/improved patient outcomes
  - Skill demonstration (ACS level III verification) relevant to facility credentialing and privileging
  - CME
- Suggested promotional elements
  - Sizzling course title
  - ACS vehicles (ACS Bulletin Brief, Bulletin, ACS website, ACS Communities, Twitter, Facebook)
  - Targeted ACS audience announcements by course director e-mail and at ACS committee and Chapter meetings
  - Targeted outreach through course director and faculty e-mails to colleagues of interest

Revenue/Expense Worksheet

Course Name & Location:	
Lab Location	**Conference Center**
Number of Hands-On Skills Stations	10
Number of Faculty	16 skills faculty
Learner to Faculty Ratio	3:1
Lab Capacity	30

Revenue

Course Registration	# of Participants	Course Fee	Total Revenue
Member Fellow	23	$1,750.00	$40,250.00
Member Residents	7	$750.00	$ 5,250.00
Industry Support			$37,500.00
Total Revenue			**$ 83,000.00**

Expenses

Non-Variable Expenses	Quantity	Participants	Price Per	Expense
Course Planning				$ 15,550.00
Marketing				$ 1,100.00
			Total Non-Variable Expense	**$16,650.00**

Variable Expenses	Quantity	Participants	Price Per	Expense
Model(s)				
Simulation Model - Inanimate Material	10		$3,000.00	$30,000.00
Simulation Model - Synthetic Material	0			$ -
Simulation Model - 3D	0			$ -
Cadaver (Full)	0			$ -
Cadaver (Torso)	0			$ -
Cadaver (Limb)	0			$ -
Standardized Patients	0			$ -
Lodging				
Lodging - Faculty	16		$300.00	$4,800.00
Catering				
Break - AM*		45	$15.00	$675.00
Break - PM*		45	$15.00	$675.00
Lunch*		45	$70.00	$3,150.00
On-Site Logistics				
Audio-Visual				$4,250.00
Room Rental**				$ 4,500.00
Bus Rental				$ -
Shipping				$1,000.00
Security				$1,500.00
Other Expenses				
Office Supplies				$ 100.00
Freight				$ 3,900.00
Copying				$ 100.00
			Total Variable Course Expense	**$54,650.00**

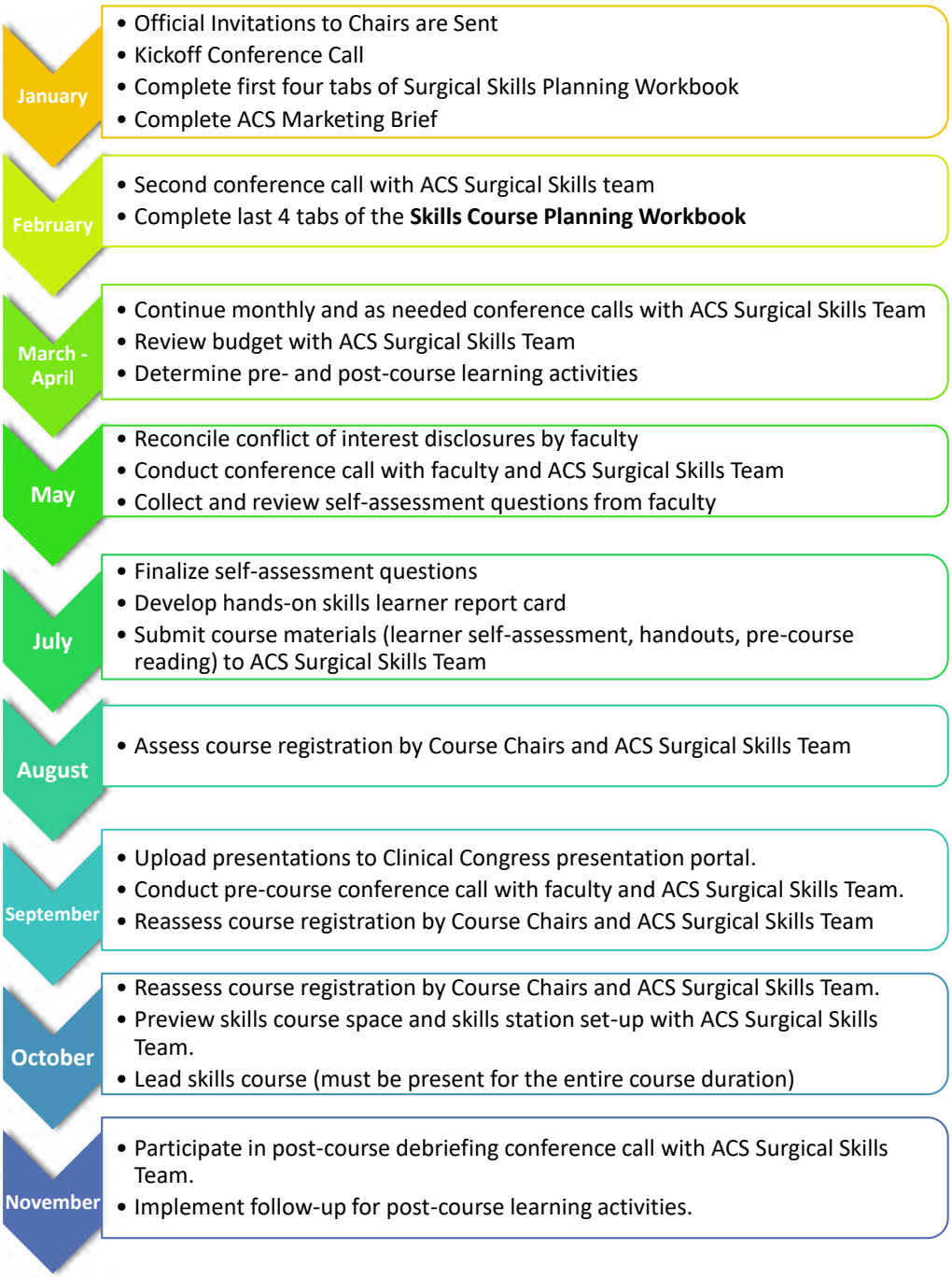
Projected revenue over/under expense	**$ 28,350.00**

Appendices

ACS Education American College of Surgeons

Appendix I: Surgical Skills Course Development Timeline

Successful courses require careful planning and continual revision. The Surgical Skills course development process spans 10 months (January – November). The completion of each task by the deadline is important to ensure that the next stage of the development process can begin on time (see an example of a Surgical Skills timeline below).



Appendix 2: ACS Web Documents and Email Documents

ACS Web Documents

- Gap Analysis
- Proposal Submission

ACS Web Link Forms (for Course Chair and faculty response)

- Response
- Disclosure
- Media Rights
- Audiovisual needs
- Bio

E-mail Documents

- Skills Courses Planning Workbook - Final.xlsx
  - Workbook instructions
  - Needs assessment
  - Objectives
  - Description
  - Evidence Basis for Course
  - Faculty
  - Agenda
  - Skills Stations
  - Station Logistics
  - Budget
- Final Learner Report Card Forms (Pre-Course Learner Self-Assessment, Hands-on Skills Assessment and Post-Course Learner Self-Assessment)
- PowerPoint Presentation Template

Appendix 3: ACS Web Documents and Email Documents

The following links are examples of how the Skills Courses Planning Workbook and Learner Report Card should be completed.

EXAMPLE Skills Courses Planning Workbook FINAL.xlsx

EXAMPLE Learner Report Card - Final.pdf

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