

Southeast Community College

DACUM

(Developing a Curriculum)

Handbook/Training Manual



Updated

September 2019

DACUM Handbook/Training Manual

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DACUM Facilitator Training

Sample Workshop Agenda

“FACILITATORS must establish and maintain the group’s pace, balance the group’s participation, clarify vague statements by probing for more details, and insist on selection of the most appropriate action verbs, task statement modifiers, and objects (nouns) in composing duty and task statements. The facilitator must motivate and lead the group and control the process, yet never impose content judgments or decisions on the participants.” (OSU DACUM Handbook, p. 12)

Day 1

8:00 a.m. Continental Breakfast

8:15 a.m. Welcome/Introductions

- Icebreaker
- Why we use DACUM

8:45 a.m. The DACUM process

1. Introduction/Orientation

2. Review Duties

3. Organizational Chart

9:45 a.m. Break

10:00 a.m. **4. Gallery Walk**

5. “Tasking Out”

11:45 a.m. Lunch

12:30 p.m. **Task out each duty** (continued)

2:00 p.m. Break

2:15 p.m. **6. Review Enabler Lists**

2:45 p.m. **7. Review Entire Chart for overall quality (“what do you do”)**

Day 2

8:00 a.m.	Continental Breakfast
8:15 a.m.	Review Day 1 (Questions/Thoughts/Ideas)
8:30 a.m.	The DACUM process: Review Steps 1-7
9:30 a.m.	Break
9:45 a.m.	Mock DACUM using the Gallery Walk approach
12:00 p.m.	Adjourn

DACUM Overview

Background

- What is DACUM/SCID?
- Brief history of DACUM & SCC.
- Why we use DACUM.

What is DACUM?

- Started in Canada in the 1960's. OSU (The Ohio State University) borrowed the concepts, polished, fine-tuned, uses DACUM today to analyze jobs, occupations, training programs for industry, governments, military, colleges, etc.
- Very fast, effective, inexpensive method of job analysis. Very focused process using expert workers who describe their jobs in detail.
- Focus group of 6-10 expert workers are led by trained DACUM facilitators through an intensive process that combines brain-storming sessions alternating with focused detail analysis of the occupation being analyzed. The DACUM chart is the outcome of this process.
- This DACUM chart is then used by each program to “map” their curriculum to the needs of industry.
- “What” errors that are found between what is being taught in each program and what should be taught in each program can therefore be identified and corrected by program staff.

SCC's adoption of DACUM:

- In the mid-1980s the DACUM process was brought to SCC initially by President Jack Huck who learned of this quality-assurance process.
- In the mid-1990's several SCC employees traveled to Columbus, Ohio, to receive official DACUM facilitator training to begin the process at SCC.
- In 2004 twelve SCC employees were trained by OSU DACUM Facilitator Trainers to become DACUM facilitators within SCC.
- SCC then embraced DACUM to study each program in the interest of keeping abreast of changes within all the industries represented at the school.

- In 2008, John Pierce received official training at OSU in Columbus, OH to become a certified DACUM Facilitator Trainer. Thus began SCC's internal training of DACUM facilitators.
- Each program is scheduled to conduct a DACUM study of its industry every five years to keep current with industry needs.
- SCC has a group of employees trained as DACUM facilitators who facilitate the DACUM workshop.
- Curriculum mapping is used to compare the lessons learned from each program's industry experts to the program's curriculum, making adjustments, as necessary, to ensure each program is up to date with the latest educational needs of their respective industries.

DACUM: Developing a Curriculum

Teach what should be taught—the latest skills & concepts



Don't teach what should not be taught—outdated skills & equipment



DACUM workshops:

- Held at the CEC or on-campus
- Breakfast, lunch, and snacks provided (program expense)
- Two-three facilitators per workshop
- Panel of 6-10 expert workers

Workshop Outline:

- * Orientation
- * Identify Duties (6-12 per chart)
- * Job Title/Organizational Chart
- * Identify Tasks (6-20 per duty)
- * Review the Enabler Lists
- * Review/fine-tune chart and lists



PHILOSOPHY

DACUM has several core beliefs:

- 1) Expert workers can describe and define their job more accurately than anyone else;
- 2) An effective way to define a job is to precisely describe the tasks that expert workers perform;
- 3) All tasks demand certain knowledge, skills, tools, & worker behaviors

The DACUM Philosophy—*You are the expert!* *(nobody knows your job better than you)*



SCC Web-Site for DACUM

Additional DACUM information, templates, and resources may be found on the SCC public web-site.

Link: (Under the “Academics” tab)

<https://www.southeast.edu/dacum/>

DACUM Workshops

Facilitator Steps

1. Orientation

- Introductions/Icebreaker
- Orientation/Review materials in folder (e.g. sample DACUM chart)

DACUM Research Chart Long Term Care Administration 2018

Duties		TASKS				
A	Manage Resident/Family Satisfaction	A1 Provide personalized care (e.g. engage residents)	A2 Build resident/family relationships	A3 Provide resident education		A4 Self-educate on patient status (e.g. read progress notes, care plans)
B	Develop Clinical Outcomes	B1 Gather clinical information	B2 Analyze clinical data	B3 Develop QAPI plan	B4 Execute/follow-up QAPI plan	B5 Audit resident care plans
C	Follow Compliance Regulations	C1 Enforce state/federal regulations	C2 Enforce facility policies & procedures	C3 Audit facility compliance	C4 Develop plan of correction	C5 Execute plan of correction

2. Review Duties (6-12 per chart)

- Based on previous chart and info submitted by panel, present list of possible duties.
- TIP:** write duties on a flip chart 1st—before putting on card. (See the whole picture.)
- Sequence the duties in the best order (order of importance, chronological, etc.)

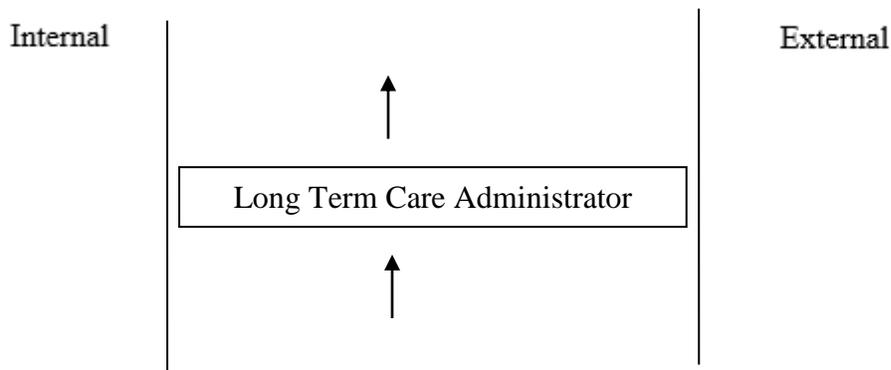
DACUM Terminology: Duties (*General Statements*)

Main Responsibilities of the Job (Categories ... Buckets ... Chapter Titles)



3. Organizational Chart

- a. Review/revise the job title.
- b. Finalize the chart on a flip chart; include both internal and external contacts.



4. Gallery Walk

- a. Post 1 flip chart per duty around the room (or hallway, other rooms, etc.).
- b. Each panel member receives a marker. One panel member per flip chart to start.
- c. For 3-5 min, panel members brainstorm. **ASK PANEL**: what do you do when working in that duty area (writing down their ideas on the flip chart). Note: panel members should put a check mark beside items on a list to indicate they also had the same thought.
- d. Rotate until each panelist has contributed to each duty sheet.
- e. Provide a 3-5 minute "review" for panelists to look at all duty charts 1 more time.
- f. Bring all flip charts back to main room.



5. Task out each duty (6-20 per duty)

- a. Start with an “easy” duty or the 1st one the list.
- b. Using the flip charts, task out each duty in the DACUM format (verb, object, qualifier).
- c. **For each duty, identify where the work might begin for that duty.** (1st task, etc.)
- d. On the flip chart, cross off the items as you go.
- e. After the cards are written, sequence tasks as you go. **READ TASKS ALOUD** when finished with a duty.
- f. **TIP: to help distinguish between enabler & task, ASK** “Why does the worker need to know that?” (If they don’t know X, they can’t do Y) or “How does the worker use that equipment?”
- g. **VERB LIST:** Panels should use verbs that fit them (how they talk about what they do).

DACUM Terminology:
Tasks (*Specific unit of work*)

Something you are paid to do

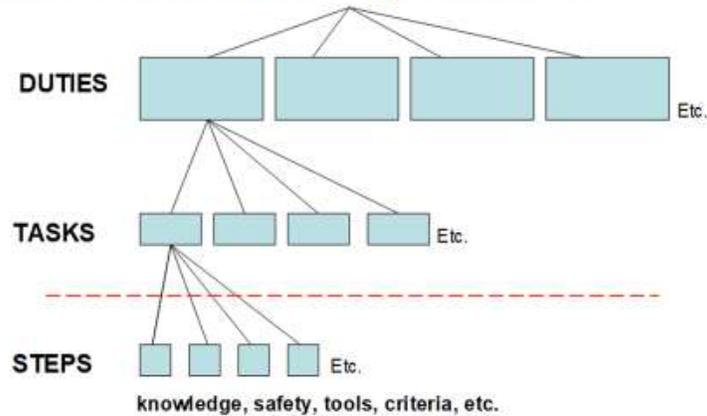


Examples:

Job	Home Owner	Home Owner
Duty (Responsibility)	Maintain house exterior	Maintain the Yard
Task (Paid to do)	Paint exterior trim	Mow the Lawn
Step	Obtain supplies, prepare surface, etc.	Check oil, Fill gas tank, Start the mower, etc.



DACUM Structure: Job/Occupation—>



6. Review Enabler Lists (during the day; for a change of pace, before breaks or lunch, etc.)

Enabler Lists*

Academic Competencies

(General Knowledge & Skills—e.g. read/write)

Personal/Workplace Competencies

(Soft Skills—e.g. teamwork, dependable)

Industry Competencies

Tools, equipment, supplies

Future trends or concerns

Acronyms

*Enabler Lists support performance of a task (but are NOT tasks)



7. Review Entire Chart for overall quality.

- Polish the DACUM chart for consistent wording and best duty/task sequence.
- If the previous DACUM chart is available, share with the panel and compare to the chart they developed.
- Make changes as the panel sees fit.
- Thank the panel; complete evaluation; present certificates & W-9; adjourn.



Supplies

All DACUM supplies are provided for each workshop. Supplies include flip charts and stand, cards for duties (green) and tasks (white), markers, pins, tape, room signs, and packets of information for each panel member.

Tips/Ideas/Strategies:

How to Task Out a Duty:

- The panel works together to task out each duty. (Small groups or 1 large group)
- Start with an “easy” duty or the 1st one the list.
- Using the flip charts, task out each duty in the DACUM format (verb, object, qualifier).
- For each duty, identify where the work might begin for that duty. (1st task, etc.)
- On the flip chart, cross off the items as you go.
- After the cards are written, sequence tasks as you go. READ TASKS ALOUD when finished with a duty.
- **TIP:** to help distinguish between enabler & task, ASK “Why does the worker need to know that?” or “How does the worker use that equipment?”

Task Statement Criteria: These statements

- Clearly describe a task in performance terms (e.g. “Mow the Lawn” & “Change the oil”)
- Are meaningful by themselves (not dependent upon the duty or other tasks)
- Should have a single action verb and an object that receives the action
- Avoid references to the knowledge needed
- Avoid references to worker behaviors needed
- Avoid references to tools and equipment

J. Pierce's List of DACUM dos & don'ts

1. When in doubt, break it out.
2. Content experts vs. Process experts
3. Key: does a Task Statement have 2 or more steps?
4. "Can you live with it?"
5. Read the cards ALOUD when a duty has been tasked out
6. Stay seated when you are not the 'lead facilitator'
7. One verb per card
8. Do not repeat Task Cards (i.e. "Confirm customer diagnosis")

DACUM Coordinator

Contact Information:

Theresa Puente

SCC Area Office, 301 S. 68th St. Place

Lincoln, NE 68510

402-323-3426

tpuente@southeast.edu

Appendix A: Sample DACUM Chart (Electrical/Electromechanical Technology 2017)

General Knowledge, Skills & Abilities		Tools, Equipment, Materials and Supplies	
Arc flash	Meter use	Abrasives	Oscilloscope
Chemical knowledge (MSDS)	Motion control	Ampermeter	Pagers
Communications	Motor control systems	Belt tension meter	Paints
Computer repair	Multi-tasking	Boom lift	Personal protective equipment
Computer skills	Networking	Cell phones	Ph meter
Conduit bending	Oral, written, email, foreign language, multi-lingual, sign language	Chart recorder	Phase meter
Confined space entry	Organizational skills	Chemicals	Plasma cutter
Drafting	OSHA	Communication radio	Power factor analyzer
Electrical	Paint	Computer	Power lift equipment
Electrical code	Permits and inspections	Cutting torch	Power tools
Electronics	Physics	DB meter	Precision measuring devices
EPA	Plumbing and fitting	Digital camera	Pressure gauge
Fall protection	Pneumatics	Fork lift	Anemometer
Fiberoptics	Power tool operations	Gauss meters	Programmable logic control
Fluid power	PPE	Hand tools	Rockwell hardness machine
Hand-tool operation	Programmable logic computer fundamentals	High speed camera	Scissor lift
Hearing protection	Read user manuals	Laser alignment equipment	Soft starters
HMI Programming	Reading	Light meter	Solder tools
Hydraulics	Rigging	Lubricants	Tachometers
Industrial controls	Robotics	Machine jacks and rollers	Temperature probes
Instrumentation calibration	Safety circuits/machine guarding	Machining equipment	Thermal scanner
Lock out/tag out	Safety practices	Megger	Torches
Machining	Soldering and de-soldering	Milling machine	Vacuum leak tester
Math	Test Equipment	Multi-Meter	
Measurement	Time management	Office equipment	
Mechanical	Troubleshooting	Oil	
Metal bending	Welding		
Metallurgy	Worker ergonomics		

Worker Behaviors	Future Trends & Concerns	Acronyms
Adaptive	Alternative energy	CM –Corrective Maintenance
Alert	Artificial Intelligence	DOT –Department of Transportation
Can-do attitude	Automation	EH&S –Environmental Health and Safety
Common sense	Combining job tasks	EM –Emergency Maintenance
Consistent	Constant changing technology	EPA –Environmental Protection Agency
Creative	Constant improvement	Haz Woper –Hazardous Waste Operation
Dedicated	Continually learning	HMI –Human Machine Interface
Diverse	Data driven	HVAC –Heating, Ventilation and Air Conditioning
Ethics	Diversity in the workplace, age, sex, race	ISO –International Standards Organization
Flexibility	Environmental concerns	LOTO –Lock out Tag Out
Good hygiene	Global economy	MSDS –Material Safety Data Sheets
Good listener	Green technology	NEC –National Electrical Code
Handle stress	Increased safety compliance standards	NFPA –National Fire Prevention Agency
Honest	Increasing certification requirements	OJT –On-the-Job Training
Housekeeping	Increasing complexity	OSHA –Occupational Safety Health Act
Humble	Increasing to be multi-skilled	PI C –Production Inventory Control
Logical thinking	Intrinsically safe circuit	PLC –Programmable Logic Control
	Keep up with old and new technology	PM –Preventative Maintenance
	Language barriers	PPE –Personal Protective Equipment
	More computer skills	VFD –Variable Frequency Drive
	PC based HMI	
	Recruitment	
	Retention	
	Robotics	
	Safety circuits	

DACUM Research Chart for Electrical/Electromechanical Program

Produced for:

DACUM Panel

Kevin Alber
Spirit Aero Corporation
Derby, KS

Jason Eickhoff
Lincoln Industries
Lincoln, NE

Ron Hartwig
NPPD
Lincoln, NE

Jeff Kimbrough
3M Corporation
Nevada, MO

Chuck Rabstajnek
NGPL/Kinder Morgan

DACUM Facilitators

Denise Elmer
Jill Sand



DACUM Research Chart Electrical/Electromechanical

Duties		TASKS		
A	Troubleshoot Equipment	A1 Recognize the Issue	A2 Identify Safety needs	A3 Acquire Materials
B	Repair Equipment	B1 Identify Repair Needs	B2 Acquire Replacement Parts (i.e. purchase, fabricate)	B3 Identify Safety needs
C	Perform Preventative/Predicted Maintenance	C1 Obtain a Preventative Maintenance Procedure	C2 Schedule Preventative Maintenance	C3 Identify Safety needs
D	Verify Equipment Performance/Compliance	D1 Establish or Acquire Baseline Data	D2 Identify Safety Needs	D3 Perform Pre-Start Up Inspection
E	Rebuild/Retrofit Equipment	E1 Define Project Scope	E2 Identify Safety needs	E3 Perform Design Work
F	Install Equipment	F1 Research Equipment Requirements (i.e. utilities, square footage, weight, layout)	F2 Identify Safety needs	F3 Prepare Installation Site
G	Maintain Professional Development	G1 Identify Training needs (i.e. deficiencies, certifications, personal interests)	G2 Identify Training Options (i.e. on-the-job training, factory manuals)	G3 Select Training Options

Technology

A4 Perform Testing	A5 Analyze Test Results	A6 Determine Repair Process	A7 Complete Documentation		
B4 Replace Parts	B5 Perform Machine Adjustments	B6 Perform Process, Corrections, (i.e. Raw Materials, Environment, Tooling)	B7 Clean Up repair (i.e. store tools, return prints, close panels)	B8 Return to Production Operation (i.e. inform production train operator, equipment to norm position)	B9 Document Repair Time (i.e. work order, parts report, billing information)
C4 Obtain necessary Equipment	C5 Execute Preventative Procedures	C6 Request Modification of Preventative maintenance Procedures	E7 Complete Documentation (i.e. work order, parts report, billing information)		
D4 Perform Star Up and Shut Down Procedures (i.e. dry cycle)	D5 Perform Quality Compliance Tests	D6 Complete Documentation (i.e. work order, parts report, billing information, time)	D7 Return to Production Operation (i.e. equipment to norm)		
E4 Acquire Materials/Equipment (i.e. parts, tools, supplies)	E5 Coordinate Project	E6 Execute Project (i.e. test down, evaluate, modifications, assembly)	E7 Return to Production Operation	E8 Update Documentation (i.e. p.m.'s, parts, prints, work orders)	
F4 Coordinate Installation (i.e. scheduling, contractors, materials)	F5 Position Equipment	F6 Connect Utilities	F7 Integrate Auxiliary Equipment	F8 Complete Documentation (i.e. work order, parts report, billing information)	F9 Perform Operation/Maintenance Training
G4 Complete Training Activity	G5 Apply/Evaluate Training	G6 Document Training	G7 Train Colleagues		

Appendix C: Completed Curriculum Map (Building Construction, 2017)

CNST CURRICULUM MAP
Duties/Tasks from March 1, 2017, DACUM workshop

Proficiency Level	Proficiency Level/Bloom's Taxonomy:													Bloom's Verbs (Samples)				Student Examples		
K	Knowledge/Comprehension: Recall facts, terms, basic concepts; understand facts/ideas													Identify, list, compare, explain				Student will define ... Student will describe ...		
A	Application/Analysis: Solve problems; apply knowledge to actual situations													Illustrate, solve, calculate, summarize				Student will calculate ... Student will compare ...		
S	Synthesis/Evaluation: rearrange parts to form a new pattern; make judgements													Assemble, create, judge, recommend				Student will design ... Student will evaluate ...		
OJT:	Deselected tasks which will be learned on the job.													Note: Our program is externally accredited.				Yes:	No:	X
	Name of Accrediting Agency:																			
DUTIES/ Tasks	CNST Core Courses in Which the Learning Goals are Addressed/Proficiency Level																			
A. Construct pre-job planning	1123	1124	1125	1126	1226	1227	1228	1229	1326	1328	1331	1430	1433	2532	2634	2636	2643	BSAD 1070	WELD 1186	ACFS 2020
A1. Conceptualize the project (i.e. find lot, meet client/architect)	K A		K A									K	KA	KA	K A S					
A2. Estimate project										K A S		KA				KAS	K A			
A3. Secure the job (i.e. contract and funding)										K										
A4. Obtain building permits (and turn in fire permits)									K								K			
A5. Schedule project (i.e. subs, suppliers)												K			K					
B. Develop building layout	1123	1124	1125	1126	1226	1227	1228	1229	1326	1328	1331	1430	1433	2532	2634	2636	2643	BSAD 1070	WELD 1186	ACFS 2020
B1. Survey project lot (i.e. identify boundaries, stake)	K A		K A													K	K			
B2. Prepare work site (i.e. safety, traffic flow, erosion control)	K	K															K			
B3. Contact utility inspectors	K	K																		
B4. Organize work site (i.e. trailers, materials)	K	K																		
B5. Initiate site excavation (i.e. topography)	K A	K	K A																	
C. Carry-out Concrete foundation processes	1123	1124	1125	1126	1226	1227	1228	1229	1326	1328	1331	1430	1433	2532	2634	2636	2643	BSAD 1070	WELD 1186	ACFS 2020
C1. Determine footing locations/elevations	K A		K A						K	K	K				K A S	KAS				
C2. Excavate basement/footings	K									K	KA					KAS				
C3. Schedule sub-contractors	K																			
C4. Construct footing forms	K																KAS			
C5. Place rebar in footings	K A	K A	A	A					K	K	K				K A S	KAS				
C6. Pour concrete footings	K A	K A	A	A						K	K					KAS				
C7. Tie foundation wall rebar	K	K								K	K					KAS				
C8. Form foundation walls	K	K															KAS			
C9. Layout anchor bolt/weld plate locations	K A	K A								K	K				K A S	KAS				
C10. Pour foundation walls (i.e. set anchor bolts)	K A S	K A S								K							KAS			
C11. Insulate & waterproof foundation walls/footings	K	K								K						K A S	KAS			

Appendix D: Current DACUM calendar of workshops

July - December 2019	Division	Date
Certified Nursing Assistant	Health Sciences	Wed, June 12, 2019
Paramedic	Health Sciences	Thu, July 18, 2019
Medical Assisting	Health Sciences	Wed, Aug. 14, 2019
GIS/GPS	CNST/ELEC/CIT/MANUF	Tue, Sept. 10, 2019
Transitions Advisors	Student Services	Fri, Oct. 4, 2019
Admissions Advisors	Student Services	Fri, Oct. 4, 2019
Criminal Justice: AJSC	Business & Community Services	Thu, Oct. 10, 2019
Academic Advisors	Student Services	Fri, Oct. 18, 2019
Business—Marketing	Business & Community Services	Wed, Nov. 6, 2019
Student Success Coaches	Student Services	Fri, Dec. 13, 2019
January - June 2020		
Culinary (FSDT)—Management	Business & Community Services	Tue, Jan. 28, 2020
Electronic Systems Technology	CNST/ELEC/CIT/MANUF	Tue, Feb. 11, 2020
New Facilitator Training	College-wide	March 3 & 4, 2020
Practical Nursing	Health Sciences	Thu, March 5, 2020
Dental Assisting	Health Sciences	Tue, April 21, 2020

Appendix E: DACUM Facilitators

Arts and Sciences

Carolee Ritter	Dean
Rose Suggett	Social Science-L
Phip Ross	English-L
Bob Zetocha	Speech-L

Construction and Electronics

Karen Koch	ARCH-M
Dale Mueller	LSCE-M
John Pierce	ENER-M
Doug Burks	ENER-M

CEC

Marguerite Himmelberg

Ag/Food & Nat. Resources and Community Services & Resources

Greg Burroughs	FIRE-L
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Health Sciences

Jill Sand	Dean
Kelly Cummins	RESP-L

Business Administration

Kathleen Reiter	BSAD-TCA
Tammie Lang	BSAD-M
Linda Hartman	BSAD-L
Lacey Jurgens	OFFT-L

Professional/Administrative

Rod Rhodes	CEC
Erin May	SENCAP-L
Jill Wightman	Institutional Research
Rebecca Carr	Institutional Research
Rachael McLeod	Resource Development
Sarah Kramer	Human Resources

PD DACUM to-do list

Program:	Workshop Date:	Time:	Location:	Facilitators:
GIS/GPS	T, Sept. 10, 2019	8:00 a.m.	CEC 304	Linda H, MH, Carolee R.

1. Recruit Panel Members:

- Contact 12-15 prospective panelists. Each panel must have between 6-10 members. The ideal panel member will be within the first 3-5 years of employment, preferably not a manager/supervisor, and cannot be a faculty member (full-time or adjunct).
- Key Questions:** What are you preparing your graduates for? Where are they finding employment—location, public/private, size of company, etc.? What do we call this person?
- Once a panel member has confirmed he/she will participate, enter his/her information in the DACUM panelist spreadsheet (example below)

	A	B	C	D	E	F	G
1	FirstName	LastName	Company	Address	City, State, Zip	Phone	Email
2							

ONE MONTH PRIOR to the DACUM workshop, send Theresa Puente the completed spreadsheet. Include place of employment, phone, and email for each panel member.

2. What is the program’s cost center? The program is responsible for the cost of food (breakfast, lunch, and snacks). We will make all the arrangements.

3. At the workshop:

- Morning: Welcome & thank the panel. This could be PC and/or Division Dean.
- Attend lunch (if possible). Let Theresa know so she can get an accurate lunch count.
- Afternoon: Thank the panel at the conclusion of the workshop. Present certificates, etc.

CONTACT INFORMATION:

Theresa Puente, SCC Area Office (5th floor): ext. 3426 (402-323-3426); tpuente@southeast.edu
 Rod Rhodes, SCC Area Office (5th floor): ext. 3429 (402-323-3429). rrhodes@southeast.edu