

# PEER-LED TEAM LEARNING LEADER TRAINING

## WELL, IT WORKS FOR US: RECRUITMENT AND SELECTION OF LEADERS AT THE UNIVERSITY OF WEST GEORGIA

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### Introduction

Early in the development of the Peer-Led Team Learning model, six critical components were identified dealing with workshop materials, course and faculty involvement, organizational arrangements and institutional support. The only one of the critical components that mentioned leaders was component No. 3, “The Workshop leaders are well trained and closely supervised, with attention to content knowledge and teaching and learning techniques.” This of course assumes an even more fundamental *sine qua non*, namely that there have to be workshop leaders.

Over the decade and a half since PLTL was recognized by the National Science Foundation as a potent force for instituting systemic change in the chemistry curriculum, different institutions adopting this model have developed a number of approaches to the selection of workshop leaders. Here at the University of West Georgia, our recruitment and selection procedures have evolved into a form that seems to be effective and successful.

### Recruitment - Early

Recruitment of new leaders occurs twice a year, between mid-March and early April for the following fall semester and between mid-October and early November for the spring semester. Actually, the first recruitment “feelers” are a couple of weeks before this. At the time of the second exam (early in March or October) in each course that involves workshops, a survey is taken of the students about their reactions to workshops. At the bottom of the survey is a sentence, “I am possibly interested in being a workshop leader myself this coming fall. \_\_\_\_\_ (yes, no, unsure). If yes, please leave your name with your instructor. You will receive an application form shortly after Spring Break.” (reads “this coming spring” and “Fall Break” if in October.)

Shortly after the Spring (or Fall) break the publicity campaign starts. This has replaced reliance on personal letters to targeted potential leaders, which in our experience had a low rate of return. Now every student in every chemistry section on campus, from first semester general chemistry to senior seminars, is made aware of the fact that applications are available.

## Recruitment - Posters

One of the main forms of publicity used consists of posted flyers. The flyers are created as PowerPoint slides and printed out on glossy 8.5 by 11-inch paper. Each one features a photograph either of someone involved with workshop such as a leader (new, veteran, or former) or a faculty member whose students attend workshop, or of an actual workshop in progress. There is then a quote from that person about the benefits of leadership or an explanation of the situation that is taking place. The quotes range anywhere from a sentimental story of how being a workshop leader has helped someone become a better person to funny one-liners. Each poster ends with a tag line urging the reader to consider becoming a workshop leader. Figures 1 shows three examples of flyers used.

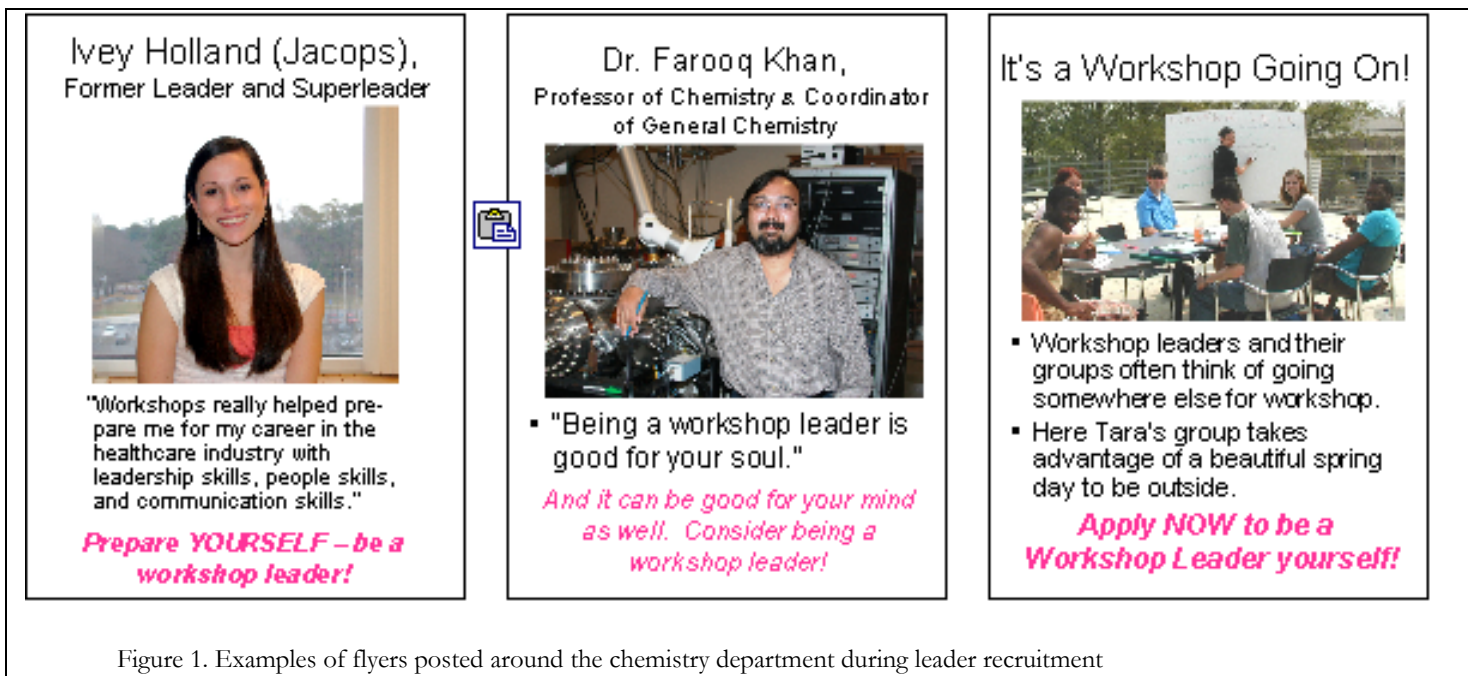


Figure 1. Examples of flyers posted around the chemistry department during leader recruitment

These flyers are posted on the office and laboratory doors of every faculty member who teaches one of the courses for which there are workshops, and on the doors and bulletin boards of every classroom, instructional laboratory, and workshop room in the chemistry wing. They are also placed in hallways and in high-traffic areas such as the lounge area frequented by chemistry students and above the departmental coffee pot. About twenty different posters are used, some new and some re-cycled from previous semesters. Counting multiple copies of many of them, there are close to sixty of the above-type posters taped or tacked over the three floors occupied by the chemistry department. As students are going about their daily routines, they can't avoid seeing the posters.

Three other posters are also used. One, posted everywhere any other flyer appears, is the text

**Be a Workshop Leader**  
**Get Involved in PLTL**  
**(Peer-Led Team Learning)**  
**There's Lots to Gain Besides the Pay**

Another is a humorous list of ten reasons to become a workshop leader.

- Ten Reasons to Be a Workshop Leader**
10. Leading workshops is better than flipping burgers.
  9. You get paid.
  8. You get academic credit.
  7. You review your chemistry knowledge as you prepare for each workshop at weekly leaders' meetings.
  6. It improves your score on the MCAT, GRE, nursing exam, etc.
  5. You gain experience working with and leading groups.
  4. It looks great on your résumé.
  3. You meet new people and make new friends.
  2. You have fun.
  1. It's an unforgettable college experience.

The last simply says

**Applications for**  
**next semester**  
**due by \_\_\_\_\_ (date)**  
**See Dr. Garmon**  
**TLC 2132**

This one, printed on half of one sheet of paper, is placed in each location along with any of the other types of posters.

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Posters are put up approximately three weeks before applications are due. Many are swapped around or replaced with new posters during the three-week period so that students who always go to the same scheduled classes won't always see the same posters there. AND they are all taken down promptly once the application deadline has passed, not to appear again until the next semester.

### Recruitment – Classroom Visits

In addition to having colorful flyers posted throughout the department, direct classroom visits are made. Instructors of each chemistry course and section meeting that semester are asked for about five minutes at a convenient time during their classes, usually at the beginning, for a workshop presentation. The coordinator or one of the superleaders (experienced leaders with administrative responsibilities) then speaks to the class about the benefits of workshop leadership, sometimes quoting the “ten reasons” above and sometimes adding a personal success story. Some of the same points that are made in the sample recruitment letter (p. 120, Peer-Led Team Learning: A Guidebook) are re-iterated during these classroom visits. Finally, the visitor reminds students of the application deadline, and answers questions.

In visiting the classroom, the presenter brings copies of the application form and passes them out to any interested student. Often the course instructor will add to the presentation, encouraging students to consider the application. If any of the class members are already leaders, these are pointed out and other students referred to them for information about their experiences as leaders.

### Recruitment – from Recommendations

While all chemistry students are invited to apply, recommendations of particular potential leaders are also sought. Current leaders are asked for the names of any students in their groups who show promise as leaders themselves. Instructors are also asked for recommendations. Both leaders and instructors are given extra application forms so that they can speak privately with these recommended students and encourage them to apply. The workshop coordinator follows up with either a printed letter or an e-mail to these students, and also to students who had earlier responded “yes” to the workshop survey question about their possible interest. This communication congratulates them on the good work they have been doing, reassures them that leaders are not required to “know all the answers” and includes contact information for any questions they may have. Written letters are delivered via the class instructor and have an application form enclosed.

An example application form is shown in Appendix I.

### Application Follow-up

Applications can be turned in directly to the workshop coordinator or turned in to a leader or instructor for passing on to the coordinator. Most are hand-delivered by the applicant to the workshop coordinator. This enables the coordinator not only to thank the applicant warmly but also to look over the application for completeness and legibility. The applicant is requested to check his or her e-mail for a notice about an interview time.

Applications are also acknowledged by e-mail. Here is a typical message sent.

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Dear Mary --

Thank you very much for completing and submitting your application to be a workshop leader during the coming fall semester. This msg is being sent to acknowledge receiving your application and to be sure that I have your e-mail address down correctly.

We (Ms. Otwell, other veteran leaders and I) definitely want to pursue your candidacy by meeting you at one of the interview times. We will be arranging these interviews as soon as possible after the application deadline, and will be getting in touch with you with a particular time and place to request you to come. It will be one of the three times you circled on your application (Apr 8 from 3:30 to 4:30, Apr 10 from 12 to 1 or from 3 to 4) unless you let us know of some change in your availability.

Look for another e-mail between April 3<sup>rd</sup> and 6<sup>th</sup>.

We look forward to meeting further with you and getting to know you better.

Lucille B. Garmon

Professor of Chemistry and Workshop Coordinator

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As applications come in they are placed on file for examination by the assistant coordinator and the superleaders. The applicant's current and previous workshop leaders are contacted, as are his or her chemistry instructors, for their assessments as to the suitability of this candidate for workshop leadership.

#### Selection – Needs

Each semester between twelve and sixteen students become new workshop leaders. These join returning veteran leaders and superleaders to serve forty to fifty workshop groups. For the past few years the number of applications received has been roughly twice the number of new leaders needed each semester. While a good applicant pool is to be desired, it also imposes responsibility for careful and judicious selection among candidates.

#### Selection – Interviews

Once the application deadline has passed, the interviews are set up. Each applicant is invited to an interview at one of the times indicated on the application. For several years, since the applicant pool became too large for individual interviews, we have used group interviews. We wanted to allow each applicant the opportunity to meet in person with those who would be making the selection decisions. In each group interview five to seven applicants sit around a table. At the other end of the table are members of the workshop staff: the workshop coordinator, assistant coordinator, and two or three superleaders.

Interviews start with welcome and introductions, then an envelope is placed on the table. This envelope contains a dozen or so slips of paper, each with a "situational" question, such as how a leader should react when one of the group members never wants to say anything. Examples of questions that might be

used are listed in Appendix II. The instructions are that one of the candidates is to take one slip from the envelope and read it aloud. This is to get the question on the table. The person reading the question does not have to be the first to respond. The group as a whole is to act as though they were a workshop group and discuss possible ways of addressing the situation. Discussion continues until all suggestions have been considered and consensus, though not necessarily unanimity, has been reached. Then the envelope is passed to the next person. Depending on time considerations, the envelope may go around twice.

Because of concerns that some leaders in the past had shown, after becoming leaders, that their grades earned in chemistry had been based on short-term memorization rather than on understanding of the concepts and principles involved, we have introduced a second envelope, which contains content questions. The instructions for this envelope are different. Each candidate is to draw one question from the envelope and then go to the board and show how that problem could be solved. Anyone who feels totally clueless about the question drawn is allowed to draw another, but may only make one substitution. The questions in this envelope are reviewed before the interview to ensure that interviewees have been exposed to the material. Usually the questions are on topics recently covered in their current classes so that it is fairly fresh in their minds. Appendix III lists some sample content questions used. We do not “grade” what they put on the board, but allow them to describe their approach and to explain if they feel that they have not been able to show adequately their mastery of chemistry material.

The staff members present then have the opportunity of directing questions of their choosing to any or all of the candidates. These questions are often creative, such as, “If you could be any animal, real or fictitious, what animal would you choose to be and why?” Other questions usually asked are about what qualities they feel they have that would make them good choices for workshop leadership. Clarification is also asked for any particular concerns noted from responses on the applications submitted.

The interview ends by allowing the applicants present to ask any questions they may have about what leadership might entail. Usually they ask when they will find out whether they have been chosen or not. They are assured that decisions will be made before the last week of the current semester. They are also told the number of applications and the probable number of new leaders needed, so they will not feel that they are alone if they do not receive an offer of leadership.

### Selection – Decisions

After all the interviews have been completed there is a staff meeting to go over consideration of each applicant. Other leaders who were able to attend one or more of the interview sessions are polled about their reactions to the candidates they observed. In addition to each interviewee’s individual responses to question, careful consideration is given to their interactions with others in the interview group (are they very quiet? outgoing? domineering?) and to how their personalities would fit into a PLTL workshop setting. Assessments previously received from instructors and leaders familiar with the candidate are again reviewed. The academic records are noted as well. Sometimes a specific question has arisen since the interview, such as concern over whether a candidate is might be thinking of a transfer to another institution next semester. In these cases more information is obtained before a final vote. The staff then ranks the candidates and from the combined rankings groups them into “yes,” “maybe,” and “no, or at least not now.” (We have heard of the categories “must have,” “will do,” and “no way” being used at some schools.)

Those in the first group are then sent an offer of a leadership position by an e-mail such as the following.

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Dear Hannibal,

I am pleased to offer you a position as a workshop leader for the Fall Semester, 2009. We received significantly more applications than we have available positions, so you are to be congratulated on your selection! Those present at your interview were very impressed and believe you would perform well as a leader.

Please respond with your decision of whether or not you accept this position. If you accept, your contract can be ready for your signature whenever you have a chance to come by my office. We hope this will be convenient for you to do before you leave campus at the end of the semester.

New leader training is tentatively set to begin on Monday, August 10 and to continue Tuesday and Wednesday the 11th and 12th. This will include the leaders' meeting for the first week's workshops. Classes begin on Thursday, August 13. Your acceptance is of course contingent on your being able to be present for the complete training.

Which leader is assigned to which workshop will be tentatively assigned over the summer, based on the leaders' schedules and on how enrollments look as schedule adjustments are made. The assignments will be finalized during the training session. Times for weekly leaders' meetings will also be arranged during the training session.

Congratulations again on your selection as a workshop leader. The veteran leaders and I are looking forward to working with you in the fall.

[Signature]

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Those in the second group, the "maybe's," are considered to be alternates. Almost always, one or more of the selected group is either unable to accept or has to withdraw later because of changed circumstances. Also, enrollment pressures may necessitate adding more workshop sections to the schedule prior to the beginning of the next semester. So having alternates available is a valuable resource. This group receives a message such as this.

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Dear Hannibal,

Thank you very much for your application to be a workshop leader. You have been selected as an alternate for a position in the fall. Unfortunately, we are still unclear about how many workshop leaders will be needed this fall, since summer orientation sessions have not started and more leaders of 1211 may have to be added. As we get a more complete picture between now and August of what enrollment will be and how many veteran leaders will be returning, additional leaders could well be needed as was the case last fall and again this past spring. In that event, we hope you will still be interested.

So that we can get in touch with you expeditiously over the summer, please let me know if your e-mail or other contact information is going to be different.

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Those present at your interview were impressed with your academic record and your good performance in the workshop group you are now in. We believe you would be a good workshop leader and hope there is a spot for you. If you do not become a leader this coming fall we certainly hope you will be interested for next spring.

[Signature]  
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Finally, those in the last group are let down as gently as possible. While some of them may be truly “no way” individuals, it is possible that others, with somewhat more maturity, or a less competitive field of applicants, would merit positive consideration. A possible wording of their message is given below.

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Dear Hannibal,

Thank you very much for your application to be a workshop leader this coming spring. We received many more applications than we have openings and had the difficult task of making selections.

Although you were not selected in this cycle of applications and interviews, we were impressed by your positive attitude and by your academic accomplishments. We also hope that you will be interested in being considered as a leader for next spring, especially if you continue in chemistry and do well. We congratulate you on your achievements so far and wish you continued success.

[Signature]  
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#### Contracts for Selected New Leaders

Upon acceptance of their appointment the new leaders-to-be are asked to sign, before they leave campus at the end of the current spring or fall semester, a contract for their leadership services during the following fall or spring semester. A copy of the new leader contract is shown in Appendix IV. These are printed on departmental letterhead and two copies are prepared for each new leader: one for her or him and one to be retained by the workshop coordinator. Each new leader is also given, at the time of signing the contract, a copy of Roth, Goldstein and Marcus's (2001) *Peer-led Team Learning: A Handbook for Team Leaders*. They are told to look it over during the break and to bring it with them when they return for training before the new semester starts.

What goes on during the training will be the subject of Part II, another article.

*Lucille B. Garmon, Professor  
Dusty Otwell, Kimberly Sutton, Tara Baratz, and Alex Priest, Peer Leaders  
Department of Chemistry  
University of West Georgia*



## References

- Gosser, D., Cracolice, M., Kampmeier, J., Roth, V., Strozak, V., Varma-Nelson, P. (2001). *Peer Led Team Learning: A Guidebook*. Upper Saddle River, NJ: Prentice Hall.
- Roth, V., Goldstein, E., Marcus, G. (2001). *Peer-led Team Learning: A Handbook for Team Leaders*. Upper Saddle River, NJ: Prentice Hall.

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APPENDIX I Leadership Application Form

**Workshop Leader Application for Fall 2009**

Name: \_\_\_\_\_ Student ID #: \_\_\_\_\_

Campus address: \_\_\_\_\_

Phone, home or dorm: \_\_\_\_\_; cell \_\_\_\_\_; other \_\_\_\_\_

Permanent address: \_\_\_\_\_ E-mail: \_\_\_\_\_

Anticipated status as of Fall Semester, 2008      Fr      So      Jr      Sr      Other \_\_\_\_

Academic major: \_\_\_\_\_ GPA: \_\_\_\_\_

Workshop preference if chosen as a leader for Fall 2009 (OK to check more than one)

\_\_\_\_CHEM 1151 (basic gen chem)    \_\_\_\_CHEM 1211 (standard gen chem)    \_\_\_\_either

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*Use back or separate paper if there is insufficient space below for your responses to the following.*

1. Why do you want to be a workshop leader? What skills qualify you for this position? (If possible, describe a situation in which you utilized those skills.)
  
2. Have you participated in workshops while enrolled in a chemistry course? If so, for how many semesters and who led the group(s) you were in?
  
3. Previous tutoring experience? Lab assistant experience? Other work experience on campus? In what other on-campus positions will you be employed as of Fall 2008?
  
4. In addition to your planned courses this fall, and any positions listed in the previous question, what scheduling obligations (meetings, off-campus work, etc.) at what times do you foresee? How flexible is your commitment to these times?
  
5. Circle all of the following times when you would be free to participate in a group interview.  
**Wed. Apr. 8:** 3:30-4:30 PM    **Thur. Apr. 9:** 1-2 PM    5:45-6:45 PM  
**Fri, Apr. 10:** 12-1 PM    3-4 PM      **Mon, Apr. 13:** 1-2 PM
  
6. New leaders need to enroll in a leadership course, XIDS 2002, What Do You Know About Leadership, for 2 hours academic credit. Part of this course will consist of training to take place over a three-day period prior to the start of classes on August 13, 2009. Are there any times between August 10 and August 12, 2009 when you would not be available?
  
7. A half-day leaders' "retreat" is held a few weeks into each new semester. Would you be free for a half day on a Friday afternoon between September 4 and September 18?
  
8. How many hours per week would you be willing to devote to the workshop program during the fall semester? (Figure 4 hours per week for one workshop; 6 hours per week for two.)

Signature \_\_\_\_\_ Date \_\_\_\_\_

*Return to Lucille Garmon, TLC 2132, by April 3, 2009*

Note: Academic records are normally checked, and instructor recommendations sought, in evaluating applicants for leadership positions. Initial here to give permission for your records to be examined. \_\_\_\_\_

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## APPENDIX II Some Possible "Situational" Interview Questions

Why do you think many students have difficulty in the course(s) for which you are applying to be a PLTL leader?

This is your first meeting as a leader, so you are still a little nervous. Wouldn't you know it, one of the first things that happens in your session is that a student asks you a question you can't answer. All eyes turn to you. How will you handle it?

One of the responsibilities of being a peer leader includes being present at all workshops and at a weekly leaders' meeting, a total of three hours a week, not counting preparation time prior to the meetings. How do you plan to meet this commitment during a busy school semester?

You have ten students in your workgroup, one of whom monopolizes the group. The other students are getting annoyed. What will you do about this?

One of the members of your group never talks, just sits and writes down what others say. How can you get that person to participate more actively?

Each week you put in a lot of time preparing for the Workshop, but your students are not coming prepared to Workshop. You have already reminded them to study, keep up with the reading, and do their online homework, but the suggestion has not seemed to prompt them into action. What is your next step?

Two of your group members are friends who are always together. They are both poor students but they insist on sitting and working together. What are you going to do?

Students clamor for an answer key. How do you respond?

There are ten problems in the workshop book for a particular workshop. There is no way for you and your group to cover all ten problems. However, you feel that all the problems are equally important. How would you handle this situation?

A student wants to talk about a personal matter after workshop. What do you tell him or her?

Some of your group members live in the same dorm as you and drop by to ask question when you are busy. What do you say to them?

Students in your workshop tell you that they are scared of this course. They hear that you have to be really smart to get a decent grade and they are afraid this class is going to ruin their chances of getting into med school.

It is getting on in the semester and students come to workshop tired, unprepared, and feeling beat up. What could you do to restore interest?

After the group has discussed a problem, you think that one or two of them still do not get it. As a leader, what's your best strategy here?

There is someone you have seen on campus and feel really attracted to. Lo and behold, here on the first day of workshop you find that that person is a member of your group. How do you react?

You have the class clown in your workshop. You can't tell whether he is lost and trying to cover up or really understands and just likes "cutting up," or what, but you feel it is distracting the focus of the others in the group. Suggest a possible way to address this.

It's the third week of the semester, and the students are still asking for an answer key to the Workshop problems. You are certain that the professor does not intend to distribute a key to you or to the students. How will you respond to the students' request?

One of the students in your group is participating and always involved in any of the group activities. In fact, this student dominates the group and inhibits the others from participating. What could you do?

A student has been missing from workshop for several weeks. What should you do?

Under what circumstances should a workshop be dismissed early?

Two of your group members are friends who are always together. They are both poor students but they insist on sitting and working together. What are you going to do?

You have two students who arrive on time, sit down and wait for you to give them all the directions. During the workshop they go to the board if you tell them to, but never volunteer for any of the problems. What are you going to do?

The second exam was just returned to the students. The students come to Workshop saying they studied hard and changed their approach from the first exam, yet still received C's. The students ask you what they should do now. Do you tell them, "Well, too bad", or what?

### APPENDIX III Some Possible Content-Related Interview Questions

#### For candidates for first-semester general chemistry leadership

A compound is composed of 5.045g of carbon, 0.847g of hydrogen, and 3.36g of oxygen. Find the empirical formula for this compound. Determine the molecular formula knowing that the molar mass = 132.16 g/mol.

A student react 30.0 g of benzene with 65.0 g of bromine to prepare bromo-benzene. Hydrogen bromide is a byproduct:  $C_6H_6(l) + Br_2(l) \rightarrow C_6H_5Br(l) + HBr(g)$ . What is the theoretical yield of bromobenzene? If the actual yield of bromobenzene was 56.7 g, what was the percentage yield?

A student carries out an experiment. She heats a 25.0-g metal cube to 100°C and then places it into 100. mL of water with an initial temp of 20.0°C. The water and metal together come to a final temperature of 22.0°C. What is the specific heat of the metal?

Rewrite the following equation as a complete ionic equation, then as a net ionic equation. Also, identify any spectator ions: (Note:  $H_3PO_4$  is a weak acid.)  $2H_3PO_4(aq) + 3Ba(OH)_2(aq) \rightarrow Ba_3(PO_4)_2(s) + 6H_2O(l)$ .

Draw the Lewis dot structure of  $OXeF_4$ . What is the central atom? What is the formal charge on the Xe atom? What is its geometry?

A student mixes 50.0 mL of 1.00 M HCl at 20.0°C with 50.0 mL of 1.00 M NaOH, also at 20.0°C. The final temp is 26.0°C. What is the molar change in enthalpy? If the procedure had used 200. mL of each solution, would the results vary?

#### For candidates for second-semester general chemistry leadership

Draw a phase diagram that is consistent with the sublimation of a solid at room temperature (22°C) and atmospheric pressure?

Consider that the following exothermic reaction has come to equilibrium:  $2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g)$ . How will each of the following affect the equilibrium mixture: (1) Oxygen is added to the system. (2) A catalyst is added to the mixture. (3) The volume of the reaction vessel is doubled. (4) Sulfur trioxide is removed from the system. (5) The mixture is heated.

A buffer solution contains 0.120 mol of propionic acid and 0.100 mol of sodium propionate in 1.50 L. What is the pH of the buffer after the addition of 0.020 mol of KOH? ( $K_a$  for propionic acid is  $1.4 \times 10^{-5}$ )

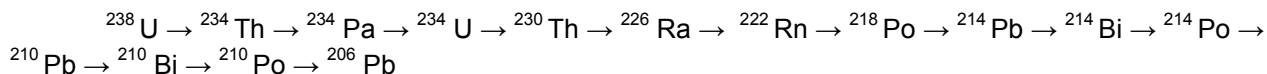
A "canned heat" product used in warm chafing dishes consists of a homogeneous mixture of ethanol ( $C_2H_5OH$ ) and paraffin (a mixture of hydrocarbons with average formula:  $C_{24}H_{50}$ ). What mass of ethanol should be added to 620 g of paraffin if ethanol's vapor pressure at 35°C is to be reduced from 100 torr to 8 torr?

What is the pH of 0.010 M solution of KF? (For HF,  $K_a = 7.0 \times 10^{-4}$ )

A 0.831 g sample of  $SO_3$  is placed in a 1.00 L container and heated to 1100 K. The  $SO_3$  decomposes to  $SO_2$  and  $O_2$  according to  $2SO_3(g) \leftrightarrow 2SO_2(g) + O_2(g)$ . At equilibrium the total pressure in the container is 1.300 atm. Find the values of  $K_p$  and  $K_c$  for this reaction at 1100K.

For candidates for first-semester allied-health chemistry leadership

The Series below represent the disintegration of uranium-238. Rewrite this series on the whiteboard. Using your periodic table, indicate add the atomic number as a subscript on the left side of each element symbol. Identify on each arrow below what kind of ray was emitted.



Predict the products of the following reactions, balance the reaction and tell what type of reaction it is. First, aqueous silver nitrate is mixed with aqueous sodium phosphate. Second, a sodium hydroxide solution is added to dilute sulfuric acid.

When a 2.0 L bottle of concentrated HCl was spilled, 1.2 kg of  $\text{CaCO}_3$  was required to neutralize the spill. What volume  $\text{CO}_2$  was released by the neutralization of 735 mm Hg and  $20^\circ\text{C}$ ? The reaction equation is  $\text{CaCO}_3(s) + 2\text{HCl}(aq) \rightarrow \text{CaCl}_2(aq) + \text{H}_2\text{O}(l) + \text{CO}_2(g)$

Draw (any style) and name all five of the differently branched isomers of  $\text{C}_6\text{H}_{14}$ .

Consider that the following exothermic reaction has come to equilibrium:  $2\text{SO}_2(g) + \text{O}_2(g) \leftrightarrow 2\text{SO}_3(g)$ . How will each of the following affect the equilibrium mixture: (1) Oxygen is added to the system. (2) A catalyst is added to the mixture. (3) The volume of the reaction vessel is doubled. (4) Sulfur trioxide is removed from the system. (5) The mixture is heated.

APPENDIX IV Contract for New Workshop Leaders

**WORKSHOP LEADER CONTRACT  
FOR CHEMISTRY 1151 and 1211**

, \_\_\_\_\_, employed as a chemistry workshop leader, do hereby contract to undertake the following responsibilities and perform the following services.

1. I will attend all sessions of the training program prior to the first day of fall classes and will attend leaders' meetings on a regular basis throughout the semester.
2. I will be present faithfully at my designated workshop(s) at the designated time(s).
3. If I am unable to attend any of my regularly-scheduled workshops I will be responsible for arranging with another leader to be present at that workshop in my place. In an emergency, I will contact one of the workshop coordinators or another designated leader if I am unable to reach a substitute.
4. Prior to leaders' meetings, I will familiarize myself with the content material and join other leaders in planning strategies for group involvement. Should I fail to attend the leaders' meeting, I realize that I will be required to find a substitute for my workshop.
5. In preparing myself for each workshop, I will regularly review what was presented and discussed during my training, so that my leadership will reflect the spirit and philosophy of the workshop model.
6. I will conduct myself as a leader professionally and ethically.
7. I will convey enthusiasm for chemistry and for the workshop experience to the students in my workshops and to other leaders.
8. I will keep accurate records of the attendance, preparation, participation and attitude of the students in my workshops, and turn in my reports promptly.
9. I will check my e-mail and telephone messages at least once in each 24-hour period, and report promptly any changes or disruptions in my e-mail or telephone service, so that the workshop coordinators and other leaders will be able to contact me expeditiously when necessary.
10. I will complete all necessary paperwork relative to my payment for these services and keep my time sheets current and accurate.

In return for these services, I will receive \$7.25 for each hour that I spend conducting workshops.

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Leader's Signature	Date	Workshop Coordinator	Date
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