

## Welcome to Jeff's CHEM 4 lecture!

We'll be starting in just a bit...

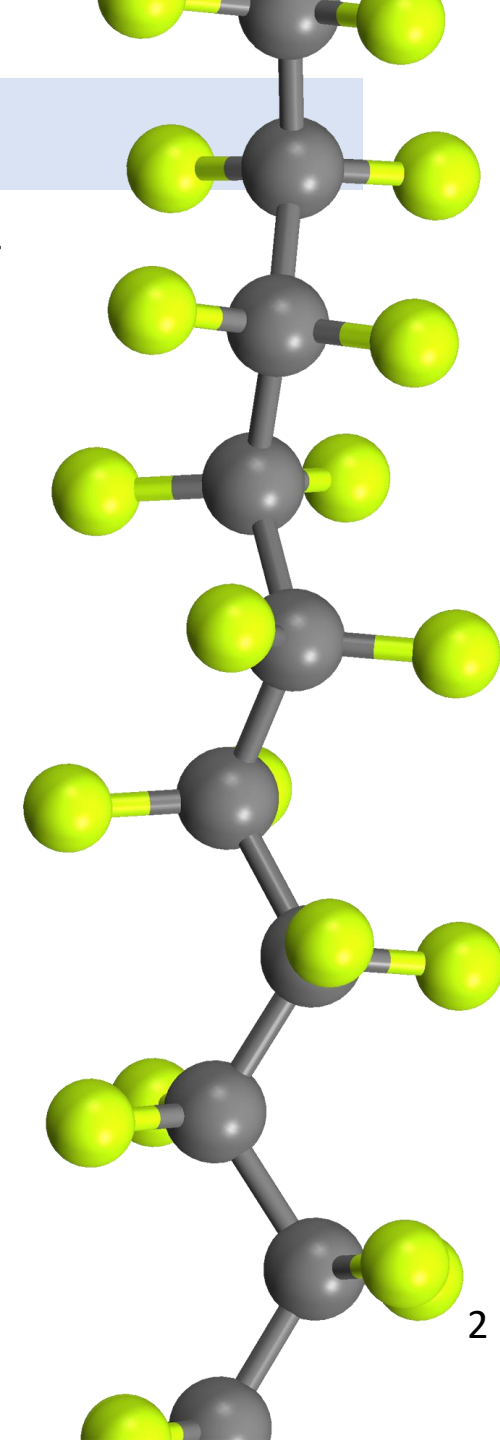
### While you are waiting:

- 1) Go to [LearningCatalytics.com](https://LearningCatalytics.com) to prepare for today's clicker questions. **Session ID =**
- 2) Make sure your Zoom User ID is your "first name last name". You can open "participants", then find your name and click on it to change it.
- 3) *In the chat, let us know... If we weren't socially isolating and you could do anything this weekend in Sacramento, what would you do?* For me, I'd have friends over; we'd hang out for a bit, go to dinner, and then go watch an old movie at the Crest theater.



## Are up keeping up with CHEM 4?

- ✓ Monday, 9/28/20 is the last day to add and the last day to drop without a serious & compelling reason.
- ✓ **Exam #1 is Wednesday, Sept 30.**
  - ✓ During normal class period. Go to Canvas to take the exam.
  - ✓ Timed: 50 minutes
  - ✓ 25 multiple choice questions; worth 4 pts each.
  - ✓ Both questions and answers will be randomized for each student.
- ✓ Can use class handouts, textbook, lecture notes, PowerPoint slides.
- ✓ Get all your materials (such as handouts, calculator and paper/pencil) ready before you start the exam.
- ✓ Even though it is open book, you will not have enough time to look up every single thing, so you must study and be fully prepared going into the exam.



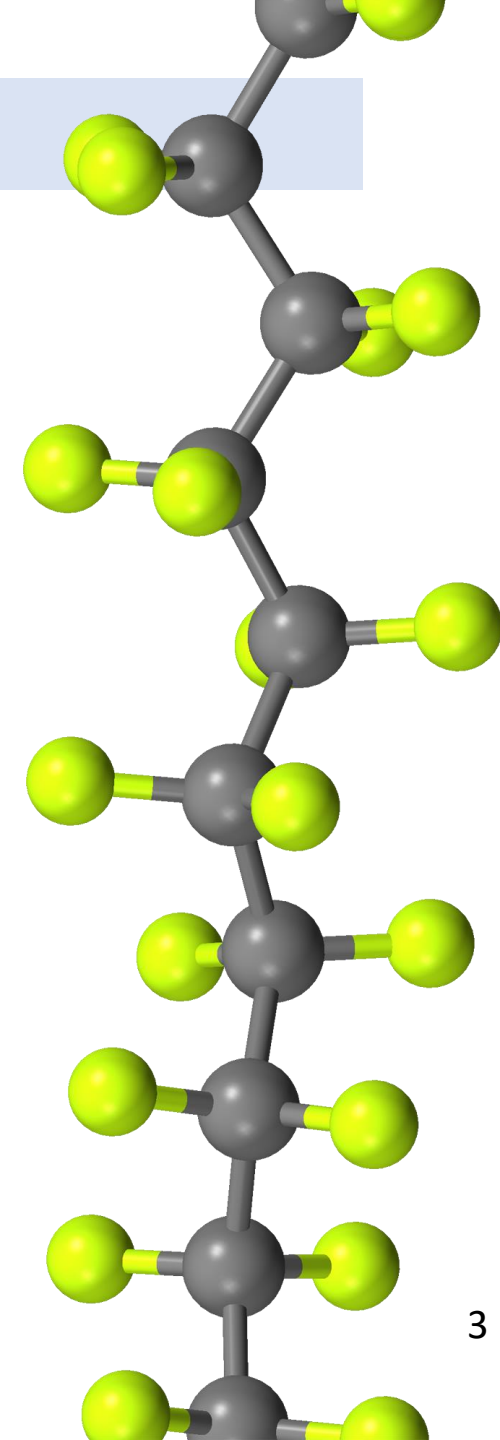
## Are up keeping up with CHEM 4?

### Resources:

- ✓ CHEM 4 Website: [tinyurl.com/SacStateChem4](https://tinyurl.com/SacStateChem4)
  - ✓ Learning Outcomes
  - ✓ PowerPoint slides and recordings of lecture
  - ✓ Finish up any late homework for credit
  - ✓ 4 practice quizzes with just naming
- ✓ Practice exams are posted on Canvas.
  - ✓ Time yourself; take it like a real exam.
  - ✓ Make a list of the type of questions you are getting wrong and focus your study on those topics. For extra practice on those topics, review: PowerPoint slides, e-text, homework problems, PAL worksheets.

### Need help?

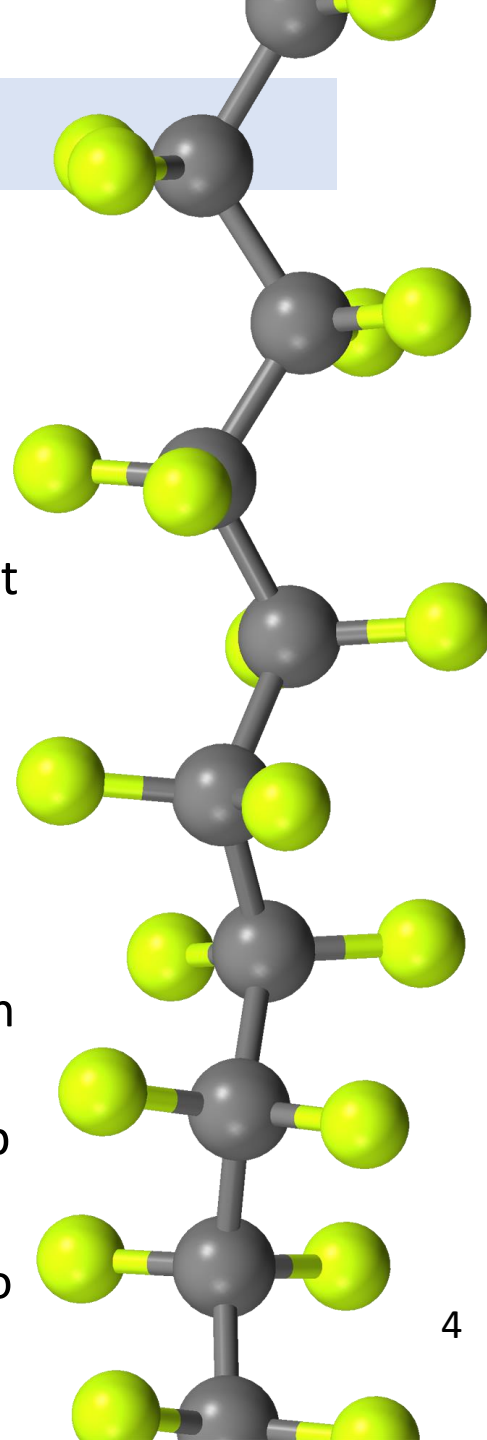
- ✓ Jeff's office hours: MWF 9 – 9:30 am and 11 – 11:30 am; and by appointment.
- ✓ PAL office hours: link is on our CHEM 4 website.
- ✓ PAL study hall: **F, 9/25 from 10am-1pm** [Zoom Code: 957 1908 1900]; **M, 9/28 from 5-7pm** [Zoom Code: 913 4032 7145]; and **T, 9/29 from 4-7pm** [Zoom Code: 976 8070 7820]
- ✓ Review session, Monday during lecture: **Email me ([jparadis@csus.edu](mailto:jparadis@csus.edu)) questions by Sun, 9/27 at 12 noon.**
- ✓ *Commit to Study* program: Allows you to drop lowest exam.



## Are up keeping up with CHEM 4?

### Academic dishonesty:

- ✓ Cannot use any online resources that are not explicitly associated with class.
- ✓ Students posting to Chegg or similar sites will be considered to be cheating.
- ✓ **Remember:** Everyone get's hurt by cheating.
  - ✓ Cheaters are stealing the hard work of others by taking a grade that they haven't earned.
  - ✓ Cheaters hurt themselves because they won't be prepared for our next exam or for CHEM 1A/1E, not to mention the MCAT, EIT, DAT, PCAT.
  - ✓ SacState's reputation is hurt when employers realize our grads don't know anything!
- ✓ **Bottom line:** There is no reason to cheat in this class. You are smart enough to earn a good grade. So, do your studying and be proud of the grade that you earn. If you end up earning a grade that you are not happy with, then do *Commit to Study*, drop the exam grade and make changes so you do better on the next exam.
- ✓ **My promise to you:** There will be no surprises and no trick questions. I just want to see if you have been learning the material that we've covered.



## Review clicker question (Covers material from last lecture)

Go to [LearningCatalytics.com](https://www.learningcatalytics.com) and login with your MasteringChemistry. Session ID =

- 1) Which of the following formula/name pairs is correct? While you are waiting for the answer, write the correct name for all the ones that are wrong.

A)  $\text{Co}_3\text{N}_2$  = cobalt(III) nitride

B)  $\text{HI (aq)}$  = hypoiodic acid

C)  $\text{FeAsO}_4$  = iron(II) arsenate

D)  $\text{H}_2\text{SO}_3$  (aq) = sulfuric acid

E)  $\text{Mn(NO}_3)_2$  = magnesium(II) nitrate

F)  $\text{Pb(S}_2\text{O}_3)_2$  = lead(IV) thiosulfate

### Should be:

[cobalt(II) nitride]

[hydroiodic acid]

[iron(III) arsenate]

[sulfurous acid]

[manganese(II) nitrate]

correct

## Chemistry in the news: The dangers of DHMO (dihydrogen monoxide)

- Death due to accidental inhalation of DHMO.
- Prolonged exposure to solid DHMO causes severe tissue damage.
- DHMO is a major component of acid rain.
- Contributes to soil erosion.
- Leads to corrosion and oxidation of many metals.
- Exposure to DHMO decreases effectiveness of automobile brakes.
- DHMO has been found in biopsies of pre-cancerous tumors and lesions.
- DHMO is been detected in hurricanes including deadly storms in Florida and New Orleans.
- <http://www.dhmo.org/>
- ***This illustrates an example of how easy it is to be fooled by deceptive information.***
- ***As college-educated citizens, we have a responsibility to work to fully understand things before rushing to judgement and to fight against misinformation and deceitful practices.***



## **CHEM 4 lecture**

Friday – September 25, 2020

*Sec 5.8, 5.10*

Naming molecular compounds

## Reading clicker question (Covers material from today's assigned reading)

Go to [LearningCatalytics.com](https://www.learningcatalytics.com) and login with your MasteringChemistry. Session ID =

- 2) Which of the following statements about naming molecular compounds is false?
- A) Molecular compounds contain two or more nonmetals.
  - B) The prefix “tetra-” is used to indicate 4 atoms of a given element are present.
  - C) Binary molecular compounds contain 2 different elements.
  - D) Like ionic compounds, molecular compounds use roman numerals to indicate charges.
  - E) The prefix “hepta-” is used to indicate 7 atoms of a given element are present.
  - F) The molecular compound CO is called carbon monoxide.



## Background: Naming binary molecular compounds

Binary molecular compounds: only 2 non-metals

**Prefixes:**

mono- 1	tri- 3	penta- 5	hepta- 7	nona- 9
di- 2	tetra- 4	hexa- 6	octa- 8	deca- 10

**Format for naming binary molecular compounds:**

(prefix  $\square$ )(name of 1<sup>st</sup> element)\_(prefix  $\circ$ )(base name of 2<sup>nd</sup> element + -ide)

- $\square$  omit 1<sup>st</sup> prefix if it is “mono-”
- $\circ$  the ending “o” or “a” on the second prefix is dropped if the 2<sup>nd</sup> element is oxygen

**Example:** CO is called **carbon monoxide**

This example includes both our exceptions from above ( $\square$  and  $\circ$ ).

CO is not called ~~monocarbon monoxide~~.

## Background: Naming binary molecular compounds

### Formula → Name

#### Examples:

Formula	Name
$\text{Se}_4\text{H}_3$	tetraselenium trihydride
$\text{P}_4\text{S}_{10}$	tetraphosphorus deca sulfide
$\text{SO}_4$	sulfur tetroxide (no "mono"      no "a"      no charge, so not "sulfate ion" $\text{SO}_4^{2-}$ )

### Name → Formula

#### Examples:

Name	Formula
diphosphorus pentachloride	$\text{P}_2\text{Cl}_5$
nitrogen trifluoride	$\text{NF}_3$

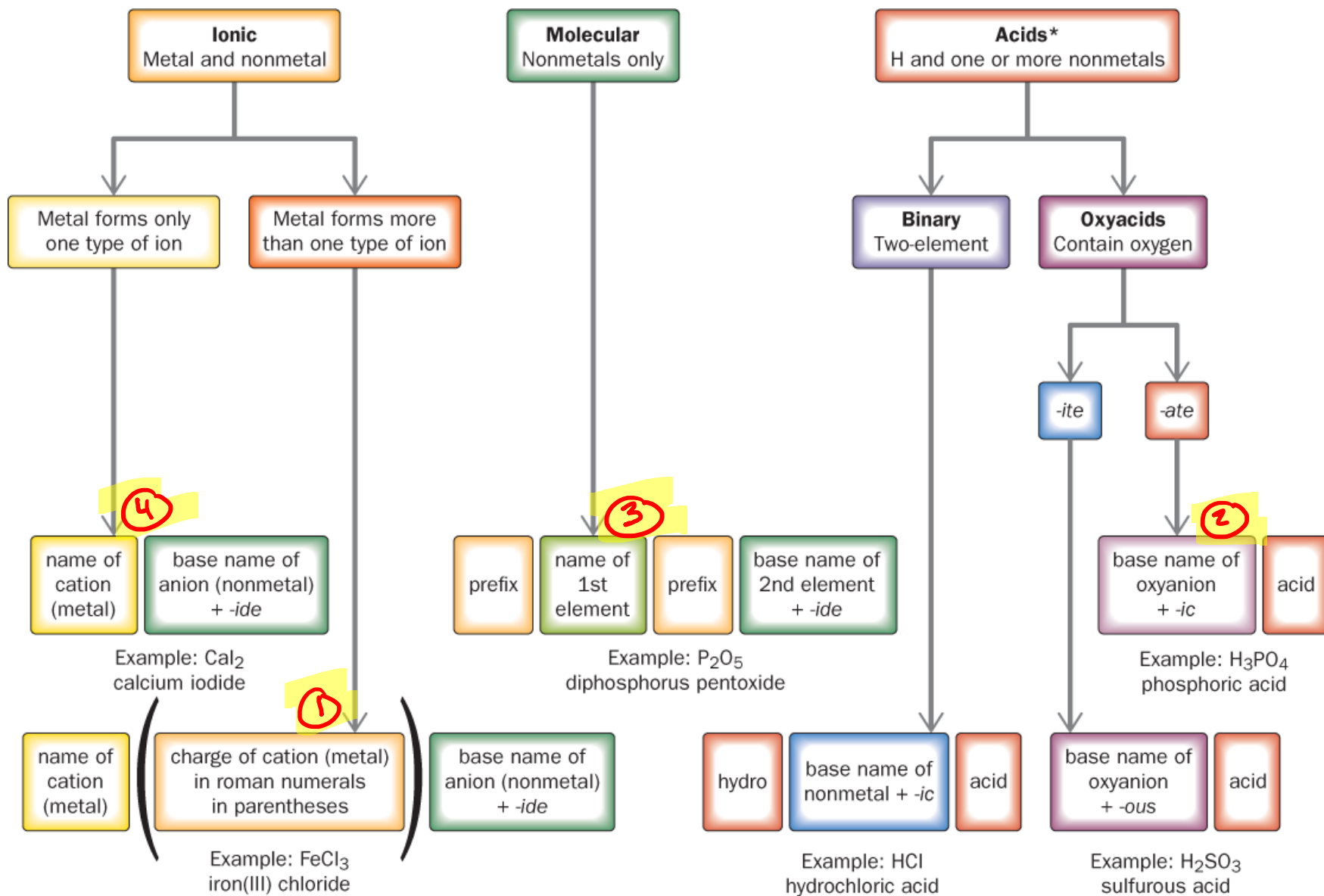
## Progress clicker question (covers material we are learning now)

Go to [LearningCatalytics.com](https://www.learningcatalytics.com) and login with your MasteringChemistry. Session ID =

3) Which of the following formula/name pairs is incorrect?

- A)  $\text{Br}_9\text{F}_6$  = nonabromine hexafluoride
- B)  $\text{CCl}_4$  = carbon tetrachloride
- C)  $\text{P}_2\text{Br}_5$  = diphosphorus pentabromide
- D)  $\text{CO}_2$  = carbon dioxide
- E)  $\text{Se}_3\text{Cl}_9$  = triselenium heptachloride
- F)  $\text{S}_2\text{F}_{10}$  = disulfur decafluoride

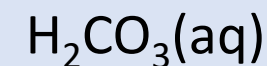
# Background: Naming summary



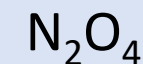
## Examples:



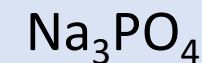
nickel(II) nitrate ①



carbonic acid ②



dinitrogen tetroxide ③



sodium phosphate ④

\* Acids must be in aqueous solution.

## Progress clicker question (covers material we are learning now)

Go to [LearningCatalytics.com](https://www.learningcatalytics.com) and login with your MasteringChemistry. Session ID =

4) Which of the following formulas is written with the correct name? Correct each incorrect name.

A)  $\text{H}_3\text{BO}_3$  (aq) = borous acid

B)  $\text{Ni}_2\text{O}_3$  = dinickel trioxide

C)  $\text{SO}_3$  = sulfite ion

D)  $\text{SrC}_2\text{O}_4$  = strontium(II) oxalate

E)  $\text{H}_2\text{S}$  (aq) = hydrosulfuric acid

F)  $\text{NO}_2$  = mononitrogen dioxide

### Should be:

[boric acid]

[nickel(III) oxide]

[sulfur trioxide]

[strontium oxalate]

correct

[nitrogen dioxide]