

Fall 2019 / Advanced Metals / University of Texas at El Paso

MTLS : 2313, 3303, 3313, 3323, 4303, 4313

Fox Fine Arts, main studio room 154
Tuesday / Thursday 9 am - 11:50 am

Assistant Professor // Jess Tolbert

contact info

915.747.6813 (office)
jltolbert@utep.edu (email)

office hours / location

Tuesday & Thursday, 12 - 1 pm, By Appointment
153A Fox Fine Arts

office appointments

Classes meet for a total of 6 hours per week. This is generally sufficient time for individual counseling. If additional time is needed to discuss technical/conceptual project related questions, make an outside appointment.

Class time will not be used to discuss class performance, grades, and/or personal problems that affect performance. Outside appointments will need to be made. To schedule a meeting for Tuesday or Thursday between 12 & 1 pm, email or make arrangements during class.

Jess Tolbert is Head of the Jewelry + Metal Program at UTEP. She holds two degrees in fine arts, both with a focus on Metalsmithing and jewelry. She received her MFA from the University of Illinois, Urbana-Champaign and her BFA from Texas State University, San Marcos. Jess actively exhibits her work nationally and internationally, is a contributing writer for Art Jewelry Forum, has attended multiple Artist-in-Residence programs, presented at the annual Society of North American Goldsmiths (SNAG) conference, and curated exhibitions of contemporary metal and jewelry work in Boston (2015), Munich, Germany (2017), and New York City (2018).

jesstolbert.com

course description:

It is the purpose of the advanced course to explore *METAL, ADORNMENT, FUNCTION, & the BODY* as creative material in art. With an emphasis on formal, technical, and conceptual problems, students will aim to develop their own personal direction and philosophy for Metalsmithing through independent research, thinking, and making. Historic and contemporary precedents and issues of Metalsmithing are presented and investigated during class discussions, critiques, readings, and self-directed research. We will use those examples as well as other creative work or relevant topics as inspirational points of departure and reference. A multitude of perspectives will encourage student's evaluation of their own and their peer's work to be informed and insightful. Emphasis is placed on the development of a personal conceptual direction in conjunction with formal and technical problem solving. In the advanced course students are expected to improve, build upon, and continue the development of their hand skills, technique, and understanding of processes. With the individual level of each student in mind, technical excellence is always expected.

COLOR. Alongside the development of your fabrication and craft skills using non-ferrous metals, we will discover the possibilities of enriching our metal surfaces through color. We will start with the ancient technique of enameling, a material made by fusing powdered glass to a metal substrate through firing. We will cover a handful of enameling techniques to build upon the basic foundations of the process, including stenciling, sgraffito, decals, cloisonné, and champlevé. We will then explore other color applications including marriage of metals, titanium and niobium anodizing, powder coating, flocking, patinas, as well as the use of alternative materials such as plastics and fibers. You will also participate in the annual Las Artistas Art & Fine Craft Show selling your work!

course goals/objectives & outcomes:

See attached Advanced Metals 2 through 7 goals & objectives/outcomes (page 5).

course requirements:

The course will be comprised of major creative assignments, technical assignments, samples, quizzes, research, sketching, reading, and writing. Technical, formal, and conceptual requirements will be given via project prompts, power point presentations, demonstrations, and discussion.

Your responsibilities as an advanced student are to make an *honest* effort to master the assignments and challenges that are presented to you, to contribute *positively* to the learning experience of the class by being an *active* participant in all class activities, and to be *respectful* of the studio, the tools, and *all* others around you.

This studio course will require significant work-time outside of class. Students should anticipate spending 6-10 hours outside of class per week to satisfactorily complete this class. A serious student will discover that minimum involvement in the class is not sufficient to provide a quality performance. The 6 hours per week in class are to be used at the instructor's discretion with demonstrations, lectures, and in-class work time. The in-class work time is structured to provide individualized instruction and assistance with the design/build process. You will gain the most insight and feedback on your work during this time if you challenge yourself outside of class to make progress. Take advantage of your time in and out of class.

grading

Final grades will be based on the following breakdown:

60%	Creative Assignments
25%	Technical Assignments
10%	Quizzes
5%	Notebook/Sketchbook
100%	Final *

*Once a final course average is calculated, attendance penalties (if applicable) will be deducted and the final grade established.

Grades are translated into points for averaging as follows:

A+	12 points	100-97%
A	11 points	96-93%
A-	10 points	92-90%
B+	9 points	89-87%
B	8 points	86-83%
B-	7 points	82-80%
C+	6 points	79-77%
C	5 points	76-73%
C-	4 points	72-70%
D+	3 points	69-67%
D	2 points	66-63%
D-	1 points	62-60%
F	0 points	less than 60%

Grades are based upon a careful evaluation of the following (when applicable):

- Class participation, effort, and attitude
- Ability to meet deadlines
- Progression (in and out of class)
- Thoroughness in research, model making, design quality, & originality
- Technical Execution and Craft
- Overall visual impact of finished work
- Development of concept/intellectual basis for work
- Participation in critique, self-assessment, and in progress discussions and analysis

And are defined as follows:

A – excellent quality work	D – below average work
B – above average work	F – unsatisfactory, failing
C – average work	

As your instructor it is my goal to instill in you a passion for the overall creative process and the desire to understand, practice, and showcase the skills you learn.

assignments:

The course will consist of major creative assignments, a series of technical assignments/samples, as well as preparatory research, designing and sketching, periodic reading assignments, and quizzes to gauge your understanding.

Late & Re-submission policies:

MAJOR CREATIVE ASSIGNMENTS will be introduced via presentation by the instructor and with a detailed assignment sheet. Your major projects are required to be turned in on time at the beginning of the class due date and in a completed condition. No late work will be accepted for major projects. They will be graded as presented at grading times.

After projects are returned they may be re-worked, finished, and/or improved and resubmitted before the end of the semester (see calendar for due date) for re-grading. The resubmitted projects new grade will be averaged with the original assigned grade to equal the final project grade.

IF NO WORK IS TURNED IN ON THE DUE DATE, THE STUDENT RECEIVES AN 'F' FOR THE PROJECT AND FORFEITS THE OPPORTUNITY TO RE-SUBMIT FOR A HIGHER GRADE

For illness or emergency situations, an email should be sent before the critique (or as soon as possible) indicating the nature of the emergency, in order to turn work in late. No email = F for the assignment.

ALL OTHER TYPES OF ASSIGNMENTS (technical assignments, samples, research, designs, etc.) will be submitted at the beginning of the class for which the assignment is due, unless stated otherwise. If this work is submitted late, 2/3 (2 points) of a letter grade will be deducted for each class session that it is not turned in. After one week, late work will not be accepted.

notebook/sketchbook:

A portion (5%) of your overall grade is based on the evaluation of your complete notebook/sketchbook.

The *notebook* will be a well-organized collection of all handouts given (project prompts, technical, etc.), neatly written demonstration/lecture notes, and printed research images. Only materials from Metals should be included and all pages need to be hole-punched and secured, not placed in the side pockets.

You should have a separate *sketchbook*, or designated space in your notebook, that includes your design sketches, research, and inspirational writings, drawings, photographs, clippings, brainstorming of ideas, found objects, etc. All materials should be secured in place with glue, tape, or staples.

These two components of the course are for you. It is good habit to organize information that you may need to reference in the future (handouts, notes, inspirations) and to develop your interests in a way that reveal the breadth/scope of your thought process, research effort, and overall creative energies.

The notebook/sketchbook will be evaluated alongside the submission of Creative Assignments in order to track progress. The set of grades will be averaged into its final grade. No late evaluations accepted.

course policies:

Attendance, punctuality, participation, and appropriate class conduct are considered performance criteria for this class. Failure to perform to required standards will result in strong grade penalties and can cause failure of this course.

participation:

- Participation in all discussions, demonstrations, critiques, and class days is expected and required for this course.
- Development and execution of class projects must be done utilizing all class meetings. Projects executed solely out of class will not be accepted.
- Participation and productivity are essential to the individual student, as well as the class group dynamic. The more the student does, sees, and questions, the faster skills and understanding will increase. Productivity, in the form of successes and failures, is the only way the student can visually demonstrate the knowledge acquired.

critiques: Participation and attendance on critique days is required. They are a very critical element of this class and should be considered as important as exams in a lecture course. Critiques are a focused and structured opportunity to articulate thoughts and ideas about your work, as well as your peer's. They should help students consider and practice critical thinking and observation in relation to the techniques and concepts challenged by the projects, as well as in larger contexts of wearable/functional art, contemporary art, history, and culture. They should also be considered an exercise in professionalism; be on time, be engaged, be respectful, and present your work thoughtfully. Group and individual critiques rely on completed work and full student participation; unresolved work will not be critiqued.

attendance:

- ATTENDANCE IS REQUIRED & PROMPTNESS IS EXPECTED. I take attendance each class.
- Each student is permitted 3 absences during the semester without penalty. Students with more than 3 absences should consider dropping the course and retaking it at a time when the student can commit to the course.
- As Departmental policy states, each absence after 3 will result in the final course grade lowered by 1 full letter grade. Absences after the first 3 may be excused at the instructor's discretion, only if the first 3 absences are excused.
- Excused absences are defined as *documented illness or serious illness or death in the immediate family.*
- Students will receive one-third an absence for arriving late or leaving early (3 times late/leave early = 1 absence). Coming to class late or leaving early is not only disruptive to the learning environment, but announcements, pertinent information, and demonstrations will be presented at the beginning of every class so it is critical to be on time, even early!
- Come to class prepared, have your materials, and be ready to work or participate. Unpreparedness will be regarded as absent. Please arrange all appointments (doctor, work related, etc.) around this class.
- Information missed due to being late or absent is the sole responsibility of the student.
- **Attendance on critique day is mandatory.** Outside of documented illness or emergency, any student who misses a critique/due date will receive a grade of 'F' on that project.
- **Attendance at the end of semester clean up is mandatory.** Students final grade will be lowered one letter grade for failure to attend and participate.

conduct:

- **Behavior:** Professional and respectful behavior is expected at all times. If there is an issue preventing you from performing to this expectation in class or during studio time you will first be given a warning, and if it continues you will be removed from the course.
- **Sick Policy:** Do not come to class sick. Please email me before class starts to let me know you will not be there and seek medical care and/or recuperate at home.
- **Guests:** Guests are not permitted in the studios during class. You should not step out to visit guests during class. You will be held responsible for adhering to this policy. If this becomes a reoccurring problem, I will ask you to leave and you'll be counted absent. If you have a guest during open lab hours please be mindful of the other students space and seating availability, especially during busy times. They may never use equipment/tools.
- **Children:** For safety reasons, children are not permitted at any time, ever, to be in the studios.
- **Cell Phones:** Please turn off, or completely silence, your phones during class time. The use of cell phones (calling, texting, social media, etc.) is absolutely prohibited during class. If this becomes a reoccurring problem, I will ask you to leave and you'll be counted absent.
- **Laptops/Tablets/Smart devices:** Please keep these in your backpacks, on the shelf, in your locker during class. The use of them is absolutely prohibited during class time. Again, if this becomes a reoccurring problem, I will ask you to leave and you'll be counted absent.

incompletes, withdrawals, pass/fail

Incompletes, 'I', grades will be considered for students completing satisfactory or better work and having serious legitimate situations beyond their control requiring additional time to complete the course requirements. All 'I' grades are at discretion of the instructor & approval of the Department Chair.

Withdrawing from the course is the full responsibility of the student. Withdrawals must be completed on or before final date to drop with a 'W'. If deadline is missed a grade will be issued for performance in the course.

Pass/fail, audit, or graduate credit options not available.

University Policy Statements

disabilities statement

Disabilities: I will make any reasonable accommodations for students with limitations due to disabilities, including learning disabilities. Please see me personally before or after class in the first two weeks or make an appointment to discuss any special needs you might have. If you have a documented disability and require specific accommodations, you will need to contact the Disabled Student Services within the first two weeks of classes. Disabled Student Services Office, East Union Bldg., Rm 106

www.utep.edu/dsso / 915.747.5148 / dss@utep.edu

plagiarism/academic dishonesty statement

Cheating/Plagiarism: Cheating is unethical and not acceptable. Plagiarism is using information or original wording in a paper without giving credit to the source of that information or wording: it is also not acceptable. All art and design work, and all written work, must be the original work of the student. Any quotations, paraphrases, or direct appropriation of imagery or ideas from source material must be properly cited according to university, departmental, and/or instructor policy. Do not submit work under your name that you did not do yourself. You may not submit work for this class that you did for another class, including previous metal courses. If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, per UTEP catalog policy. Refer to <http://www.utep.edu/dos/acadintg/htm> for further information.

- **Music:** Listening to personal music is only permitted during in-class work time and on headphones at a reasonable volume. This is so you are able to work safely, and so you're not shut off from engaging with your peers. Watching movies, TV shows, etc. on phones/tablets/laptops during class hours is not allowed. I will ask you to turn it off.
- **Open Lab Hours/Access:** The studio will be open outside of regular class hours to all students currently enrolled in a Metals class under monitor supervision Monday-Sunday. As an advanced student, you must have your UTEP ID available for police identification to work outside of the posted times. *You can call before 8am & after 5pm, Monday through Friday; & any time during weekends.*
- **Studio & Personal Safety:** All safety procedures will be explained to you throughout the semester, and every consideration has been taken to create a safe environment for you to work in. Be proactive regarding your health & safety.
 - Do not use any tool or equipment that has not been demonstrated to you by the class instructor.
 - Use equipment and materials with proper instruction and supervision.
 - Please report immediately (to myself, TA, or work-study student) any tool or equipment in need of repair.
 - There are to be absolutely no food or drinks in the studio. Please leave them outside of the classroom. You should not use class time to eat meals or spend excessive time in the hall taking food/drink breaks. Come prepared, meaning well fed!
 - Always wear appropriate attire and footwear while working in the studio. Safety glasses, protective clothing, dust masks, aprons, gloves, or any specifics mentioned by the instructor. Students must wear close toe shoes at all time in the studio, pull back/pin up long hair, remove loose jewelry, avoid loose clothing, and clothing that reveals too much skin. If not in compliance, you will be asked to leave to get the proper attire.
 - Students should never work alone. If you must, be sure to let someone know where you are and keep a cell phone with you. If you or another student has an emergency or serious accident, or you feel unsafe for any reason, you should call the UTEP police immediately (747.5611).
- **Cleanliness:** You are required to clean up your bench area and any space you've worked in every day that you work in the studio (in and out of class). The last 5-10 minutes of class time is reserved for clean up. Anytime you leave the studio you must clean up, even if you plan to return later. Please put all of your tools, materials, etc. away in your lockers, studio tools and equipment back in their proper place, and wipe down or sweep bench/table-tops, drill press area, and other communal areas once you are finished using the studios. While in class, use lockers and shelves to keep bench tops and floor surrounding benches and soldering area clear. If you have difficulty cleaning up or putting away tools you will receive a special tutorial on how to clean up after class.
- **Studio Responsibilities:** Take care of the studio. The maintenance of our space isn't the sole job of the janitors, the TAs, the work-studies, or myself, it is Everyone's. Being aware of your surroundings and treating it like it was your own (because it is) will create a positive working environment and a well-oiled machine! We need all hands on this.
*The last student to leave the studio will be responsible for turning off all equipment, including pickle pots, hot plates, ventilation, bleeding all oxygen & gas lines (whether or not you have been using them), putting away tools, filling out & signing the closing checklist, turning off all lights, and locking the main classroom doors.

note/disclaimer:

If it is necessary to make any changes to the content of this syllabus during the course of the semester students will be notified.

Weekly updates and important information will be provided via email often. Students are required to check email regularly and are responsible for obtaining information given. Failure to check email is not a viable excuse for missing course information.

MTLS II, 2313, CRN 11532

This course will continue the exploration and perfection of techniques and processes encountered in Metals 2303, while expanding to include more complex and technically demanding skills. Although technical skills will be stressed, the focus of this course will be the integration of the technical, formal, and conceptual research. *Prerequisite* MTLS 2303 and ARTF 1304.

Course Goals & Objectives:

- ◆ Development of an advanced level of visual literacy
- ◆ Development of an individual direction in studio problem solving
- ◆ Greater understanding of current trends in the field of Metalsmithing
- ◆ Continued development of work ethic and commitment needed to succeed in achieving the above stated goals

Course Outcomes:

- ◆ Experience in pursuing an individual direction in creative problem solving
- ◆ Distinguish safe and appropriate procedures and practices utilized in the studio
- ◆ Expanded technical knowledge of tools, processes, and terminology
- ◆ Awareness of historical and contemporary aspects of the field
- ◆ Thoughtful and professional evaluative skills through participation in group critique and discussion
- ◆ Experience in pursuing an individual direction in creative problem solving
- ◆ Development of time management skills necessary to plan and complete long term projects

MTLS III, 3303, CRN 12325

This course will expand on the technical knowledge and skills acquired in Metals 2313. More emphasis placed upon the refinement of a personal vision. *Prerequisite* MTLS 2313. Students seeking prerequisite waiver must contact the instructor.

Course Goals & Objectives:

- ◆ Continued development of an advanced level of visual literacy
- ◆ Refinement of an individual direction in studio problem solving
- ◆ Greater understanding of current trends in the field of Metalsmithing
- ◆ Continued development of work ethic and commitment needed to succeed in achieving the above stated goals
- ◆ Understanding of conceptual and formal issues of importance to the field of Metalsmithing

Course Outcomes:

- ◆ A more defined individual direction in creative problem solving and personal vision
- ◆ Sophisticated technical knowledge of tools, processes, terminology, skill, and concept
- ◆ Awareness of historical and contemporary aspects of the field
- ◆ Thoughtful and professional evaluative skills through participation in group critique and discussion
- ◆ Development of time management skills necessary to plan and complete long term projects

MTLS IV, 3313, CRN 12326

This course will expand on the technical knowledge and skills acquired in Metals 3303. More emphasis placed upon the refinement of a personal vision. *Prerequisite* MTLS 3303. Students seeking prerequisite waiver must contact the instructor.

Course Goals & Objectives:

- ◆ Continued development and mastery of a more difficult level of technical skill
- ◆ Developed critical thinking skills that help to evaluate personal and peer's work
- ◆ Greater understanding of current trends in the field of Metalsmithing
- ◆ Continued development of work ethic and commitment needed to succeed in achieving the above stated goals
- ◆ Understanding of conceptual and formal issues of importance to the field of Metalsmithing

Course Outcomes:

- ◆ A more defined individual direction in creative problem solving and personal vision
- ◆ Good time management and a strong work ethic
- ◆ Sophisticated technical knowledge of tools, processes, terminology, skill, and concept
- ◆ Making work that addresses current issues in the Metalsmithing field
- ◆ Understanding of historical and contemporary aspects of the field
- ◆ Thoughtful and professional evaluative skills through participation in group critique and discussion
- ◆ Development of time management skills necessary to plan and complete long term projects

MTLS V, 3323, CRN 12327

This course will expand on the technical knowledge and skills acquired in Metals 3313. More emphasis placed upon the refinement of a personal vision. *Prerequisite* MTLS 3313. Students seeking prerequisite waiver must contact the instructor.

Course Goals & Objectives:

- ◆ Exhibits technical ease in their work and begins to express a consistent visual statement in work
- ◆ Developed critical thinking skills that help to evaluate personal and peer's work
- ◆ Greater understanding of current trends in the field of Metalsmithing
- ◆ Continued development of work ethic and commitment needed to succeed in achieving the above stated goals
- ◆ Understanding of conceptual and formal issues of importance to the field of Metalsmithing

Course Outcomes:

- ◆ A defined individual direction in creative problem solving and personal vision
- ◆ Good time management and a strong work ethic
- ◆ Sophisticated technical knowledge of tools, processes, terminology, skill, and concept
- ◆ Making work that addresses current issues in the Metalsmithing field
- ◆ Understanding of historical and contemporary aspects of the field
- ◆ Thoughtful and professional evaluative skills through participation in group critique and discussion
- ◆ Development of time management skills necessary to plan and complete long term projects

MTLS VI, 4303, CRN 12328

This course will expand on the technical knowledge and skills acquired in Metals 3323. More emphasis placed upon the refinement of a personal vision. *Prerequisite* MTLS 3323. Students seeking prerequisite waiver must contact the instructor.

Course Goals & Objectives:

- ◆ Exhibits technical ease in their work and shows consistency and growth in personal visual statement
- ◆ Strong critical thinking skills that help to evaluate personal and peer's work
- ◆ Greater understanding of current trends in the field of Metalsmithing
- ◆ Continued development of work ethic and commitment needed to succeed in achieving the above stated goals
- ◆ Understanding of conceptual and formal issues of importance to the field of Metalsmithing

Course Outcomes:

- ◆ A defined individual direction in creative problem solving and personal vision
- ◆ Good time management and a strong work ethic
- ◆ Sophisticated technical knowledge of tools, processes, terminology, skill, and concept
- ◆ Making work that addresses current issues in the Metalsmithing field
- ◆ Understanding of historical and contemporary aspects of the field
- ◆ Thoughtful and professional evaluative skills through participation in group critique and discussion
- ◆ Development of time management skills necessary to plan and complete long term projects

MTLS VII, 4313, CRN 12329

This course will expand on the technical knowledge and skills acquired in Metals 4303. More emphasis placed upon the refinement of a personal vision. *Prerequisite* MTLS 4303. Students seeking prerequisite waiver must contact the instructor.

Course Goals & Objectives:

- ◆ Through development of a personal vision it is expected that students will become independent and self-directed in their art-making.
- ◆ Continued development and understanding of the goals & objectives stated in MTLS 4303.

Course Outcomes:

- ◆ In addition to the outcomes stated in MTLS 4303, students are expected to prepare for the production of a consistent and tightly focused group of work that shows technical & concept driven competency. Strong technical skills and material understanding must be apparent in the completed works.

Multi purpose required materials*

As an advanced student your toolbox should include ALL of the following:

- ◆ 6" Half-round #2 cut file with handle
- ◆ Jewelers saw frame, 4" or 5"
- ◆ Plier set: chain, round, flat nose
- ◆ Side cutter (sometimes included with plier sets) for cutting solder
- ◆ Set of 6 assorted needle files, cut #2
- ◆ 6" steel tweezers with sharp non-serrated tip
- ◆ 6" metal ruler
- ◆ Assorted drill bits: #60, 55, 52 are good to have
- ◆ Ring clamp
- ◆ Silver solder: Hard, Medium, and Easy (at least 1ft. each)
- ◆ Solder pick
- ◆ One jar non-fluoride paste flux for silver soldering
- ◆ One small, soft paint brush – for flux
- ◆ T-pins: Perkins sells them by the dozen
- ◆ Wet/Dry Silica Carbide abrasive paper (black color): #'s 220, 320, 400, 600
- ◆ Steel Wool: Grade #0000, fine
- ◆ Saw blades: various sizes - #2/0, #4/0 are good to have
- ◆ Beeswax, old candle, or soap – for saw blade/drill bit lubrication
- ◆ Center punch
- ◆ Scribe
- ◆ Scissors & X-acto knife with blades
- ◆ Masking tape & Rubber Cement
- ◆ Fine point & regular sharpie marker
- ◆ Sketchbook, tracing paper, pencil, eraser
- ◆ Metal/Wire as needed for assignments**
- ◆ 3-ring binder
- ◆ Safety glasses
- ◆ Hand towel, rag, or old t-shirt
- ◆ Small/Medium art supply/tool box

Optional items that are handy:

- ◆ Caliper
- ◆ Square
- ◆ Miter vise
- ◆ Dividers
- ◆ Shape templates

*Materials and supplies will be needed throughout the semester and you will be given advance notice to procure what is necessary for projects, samples, assignments, etc.

**As an advanced student is a good habit to procure a stock of a variety of metals (sheet, wire) to have on hand when needed.

Studio/Lab UTEP Course Fee:

Sparex/Pickling solution – post-soldering cleaning acid; gases used for soldering; general studio expendables; general studio tool wear and replacement

studio communal tools & supplies:

The studio has some of the listed items, as well as others, for communal use. However, that does not mean they are guaranteed to you. If there is a particular tool you like to use and use often, it is beneficial to purchase one for yourself. This way you will always have access to it. Please help maintain the communal access to tools and equipment by ALWAYS putting things back in the appropriate place when you are finished with them. If you see a tool out and not being used, place it back in its spot. Please do not take tools home with you. STUDIO KARMA!

local suppliers:

- Perkins Jewelry Supply / 1124 E Yandell Dr. **10% student discount with ID
Open Monday – Friday 9:30 am to 6 pm, closed weekends. 915.533.6565
- Armor Metals / 9925 Carnegie
- Hobby Lobby, Michael's, Hal's Hobby Warehouse, Home Depot, Lowes, Ace Hardware

online suppliers:

- www.riogrande.com
- www.ottofrei.com
- www.contenti.com
- www.metalliferous.com
- www.reactivemetals.com
- www.amazon.com

recommended books:

- The Complete Metalsmith by Tim McCreight
- Contemporary Jewelry in Perspective by Damien Skinner
- The Art of Enameling by Linda Darty
- Online: www.artjewelryforum.org – contemporary jewelry articles, interviews, reviews

membership:

- SNAG - \$58/year student membership (includes digital & print *Metalsmith* subscription). Stay connected, learn of opportunities, conference discount.