ISU Student Questions for NWS Des Moines Staff – Fall 2015

*Answers are color coded to the individual that answered them… so you can follow their answers all the way through.

- **Work**
- What do you do every day? What is your task list at work?
    - My duties vary from day to day depending on what shift I am working, what the current and upcoming weather dictates, and which desk I am staffing at the office. Sometimes we are very adaptive in terms of what each of us is doing on a particular day. If it is a quiet weather period and I am on the forecast desk, most of my day is spent analyzing observations and forecast models, composing a mental layout of the forecast, and manipulating our graphical forecast editor so that the ongoing products at the end of my shift will fit my expectations of how the weather will evolve. There are also dozens of other, generally smaller, but still important tasks too numerous to detail here.
    - #1 should obviously be check the weather, present and forecast. Immediately figure out what is causing the current weather. Check to see how the models progress into the future. I'll spare those details. Perform focal point, team duties or training. This can take up a huge part of your day. It's a challenge not to have it overwhelm you weather duties.
    - As an intern, the core duties (at least here at the Des Moines WFO) include working with climate data/products (climate summaries, regional temp/precip summaries, etc.), monitoring river conditions and issuing river flood warnings, quality controlling incoming observation data, and overseeing the functions of the NOAA Weather Radio. But as an intern you have the ability to also issue forecasts/severe weather warnings (once proficient and qualified), participate in outreach events, work on research projects, and just help out in general with various office duties. The sky is the limit, really.
    - Depends on the position. From the Public Desk to Forecaster to Lead Forecaster – the duties differ. Much of operations is spent analyzing data, coordinating with forecasters via chat, answering public inquiries as well as assisting governmental agencies with questions about the current weather, upcoming weather, or past weather.
    - Most days involve forecasting which means spending your day analyzing data and producing the forecast. There is a time table which you have to follow which can be hard in complex situations but you get used to it.
    - Making the forecast by looking at models, satellite, observations, using different techniques and pattern recognition based on the weather issue of the day such as high winds, fog, snow amounts, winter precipitation type, heavy rain, temperatures, severe weather, etc. Short term and long term are different depending on aviation and fire weather forecasts that need to be done too. Aviation looks at cloud heights, visibilities, wind direction and speed, and weather. Fire weather looks at dryness of plants/fuels, moisture in the air, winds, mixing heights, etc. Usually during each shift there is time for other work as well such as doing research, training, miscellaneous duties. We also do a lot of media interviews with radio stations and newspapers and an occasional television interview. We answer several calls from the public about the forecast.
- What do you do during downtime? Like when the weather is nice

    - This is the time to work on projects and training.
    - Even during quiet weather we still have a substantial number of routine duties and products that need to be issued. Aside from that, or if I am on an administrative (non-forecast) shift, I will generally work on various training, research projects, and teams/programs within the office that I participate in or am in charge of.
    - See above focal point, team duties or training
    - Training, research/case study reviews, outreach projects, administrative/email catching up, more training….
    - The main focus for "downtime" is training, working on projects, or working on office programs – too many to list here. The bottom line is – you are not just forecasting as a member of the office operational team – you will be expected to wear several hats.
    - Training, project work especially in your 'focal point' areas. Focal point duties are the underlying areas we all have to do social media, stormdata, climate etc but that we don't usually get to day-to-day but that need to get done.
    - During the quiet periods or non-operational/forecast shifts we work on other office duties such as specific programs we are in charge of, perform office outreach like office tours, school talks or spotter talks, conduct research such as case reviews or looking at different topics to study that our office struggles with. We also work on web pages and various office programs. I work mainly with keeping the storm data/reports and warnings verified for each weather event, I work with the student volunteer program and job shadows, keep our decision support services program going where we work with our partners to determine their needs during high-impact weather events and also help them understand how we can help them. Some who work on research projects travel and present at local/regional/national conferences.
- How hard is it to get used to shift work? How do you balance it with the rest of your life?
    - It's one of the more difficult parts of the job. Mindset is a lot of it, as far as handling the shift work. As for balance, that is difficult and you have to accept the fact that you are going to miss out on some events.
    - When I started in the NWS I was younger, single, just out of college, and used to sleeping weird hours, so the initial adjustment to shift work was not bad for me. However, there are several things to keep in mind as you consider an NWS career. First, the shifts worked by interns are generally (but not always) easier to work around than those worked by forecasters, particularly the overnight "graveyard" shifts worked on the forecast desk. Thus the shift work you adjust to as an intern will require an even more significant adjustment as you move into the forecaster ranks. Second, shift work always gets worse with age, so the older you get the harder it will get. There are no exceptions to this. Third, once you have a family (spouse, children, etc.) it does get harder to balance the demands of rotating shift work with family life. That being said, there are hundreds upon hundreds of forecasters in the NWS that have families and they nearly all make due, so it can be done.
    - Getting use to shift work is easy when you're young without children and a spouse. You can plan your day as you wish. Sleep 12 hours if you want. However as you age all those things become more challenging. You need to plan ahead more and learn you can't burn the candle at both ends. You're going to have to learn to say "no" to things or your work and physical states will both suffer.

- Yes, it can be hard. Everyone handles shift work differently. If it is on a routine schedule, it isn't too hard to get used to. Yes, it will cut into your social life and you will learn how to balance it out. It's just like having a kid…it will be a significant impact on your life but you learn to work with it and there are times that it actually is beneficial to you.
- You never really get used to shift work – especially the rotating schedules that we, as an organization of operational forecasters have on a weekly basis. You try as best you can to work with it – not around it – to keep yourself happy and healthy. It takes plenty of discipline, sacrifice, and juggling of priorities. Keep in mind, however – that all jobs and careers require these adjustments; as well as relationships. The simple days are over!
- It wasn't so hard for me. Most of my jobs leading up to the weather service were shiftwork (restaurants/dorm work) so it's not terrible. It can be to some people though if they're not used to it or to having anyone in their family do it. I was lucky that my family and my husband's family both have a lot of health care professionals so they understand the rotating shifts. It took some doing but the rest my life is well balanced now. Though I don't have children and my husband only works 3 days a week. There are some major benefits to working shift work. You never have to worry about using your leave to do mundane things like going to the doctor or the bank, or being home for the repair man or delivery guy. And you can go shopping or other things (museums, out to eat) when nobody is around which is awesome.
- It is an adjustment to see what type of sleeping routine/pattern works best for each person. You also have to find out how much you can do outside of work when working each shift. For example I found that going to sleep right when I got home from work on an overnight shift and sleeping through the day, then being up for the evenings and going in to work is what works best for me. In addition, I found that I have to limit what I do during the evenings, so that I am not going out and doing a lot each night or I get too tired on my night shifts. However if I go out on a few of them that is ok. I usually stay home and fairly low key the evenings of the first 1 or 2, when I am most tired as I am transitioning into the shift. Toward the end of the strings (usually 4 or 5) I can do more as my body is used to the schedule more. It then takes me a bit to come out of the night schedule. Evening shifts are usually easier to transition too, but still take some getting used to as your off time is usually when everyone else is working during the day so that can be frustrating since you may want to go out with friends or see family, but they are busy.

  To get a good life balance, I feel it is just something you have to make a priority. I try to make as many family things as I can when I am off or if I can take time off. It is about making the time with family and friends quality time versus just quantity of time. You have to find things that you enjoy doing during the times you may be off and others aren't and realize that occasions such as Christmas or holidays are what you make of them versus just the date on the calendar. You also have to have an understanding family/spouse. My family understands that I would like to be there for every holiday as much as anyone else, but sometimes it is not possible like the past few years we have celebrated our Christmas a week late and it has been just as nice as others that occurred on the actual holidays. This is also something I currently

am struggling with being a new mom and working, but so far it is going good. I know that I just have to make the time with my children count when I am home and focus on the positive aspects of my job and schedule.

The NWS does allow job sharing, meaning two people work part-time to fill 1 full-time position at an office. However you have to be able to find someone willing to job share with you. This can be done, but it is very hard to do. There are probably only a few places that this is occurring across the country.

Some other things to think about is that a lot of times to move up quickly throughout the agency you have to be willing to move around to different locations. There may be opportunities to move up at one office, but the timing does not always work out. Therefore you may end up stalling or stinting your career goals at times to stay in a more preferable location.

I will add that being a female in a male-dominated field does have its challenges when it comes to a work-family balance. As there are things that everyone assumes the mom is home to handle and my husband has to take on more parenting than the average Dad may do because of my shift work. Therefore discussions surrounding your shift schedule and family life should be made when making long-term life decisions like marriage or having children. My husband knew when we were dating that once we had kids there were going to be additional stresses on him knowing that I would have the different shifts in the evenings, overnights, weekends and holidays so it is something to make significant others aware of. This also comes into play as I am the primary breadwinner of the family so again it makes it harder on the family if I were to quit working after having children, as the family income would take a huge hit and we would not be able to afford many of the things we can because of me working.

- What shift is your favorite?
    - For me personally, the 2200-0600 (one of the midnight shifts). Less distractions and time to concentrate on the task at hand.
    - Overall I would say the evening shift, as that allows me free time with my wife and young son during the day, and also allows for plenty of sleep. However, as my son reaches school age then day shifts will probably be preferable, despite the early wake-up time, as they will allow for family time in the evenings. Nobody likes the overnight "graveyard" shift.
    - I'm not a morning person. I don't like waking up to an alarm clock, so P shifts (2-10pm) are my favorite. I can get things done during the day and keep my sleep schedule close to normal people. This does take you away from family time and events during the evening hours.
    - Depends on the time of year. During the winter, I have no real preference in shifts. However, during the summer, I like our morning shifts (6am-2pm) as it gives me ample time to go out and enjoy the afternoon weather.
    - Probably day shifts – it seems most normal.
    - All of the shifts have pros and cons, which is why it's good we rotate through them and don't just have a set shift we work.

    - I like the dayshifts best when it comes to my life outside of work, but when it comes to truly which shift I like best while at work it would be the evening or midnight shift when things are quieter and I can get additional work done on other projects besides the forecast. The shifts are very peaceful during quiet weather with less phone calls.
- What position requires the least amount of science and math at the NWS?
    - Within a NWS forecast office environment, the position that requires the least amount of science is probably the administrative services assistant, essentially the secretary for the office, who focuses on paperwork, administrative duties, getting employees paid, etc. However, that job still requires some math. All other positions within the office require some degree of scientific knowledge.
    - In reality, you really won't need to use any of it if you don't want to. What your learn in dynamics rarely comes up unless you're into research, being a SOO or trainer.
    - Probably the Administrative Support Assistant or Hydrometeorological Technician.
    - Administrative positions. For the most part, the remainder of the positions in operations requires the usual 4 year complement of science, math, computer science and meteorology.
    - They are all pretty equal.
    - All have their own aspects of using science or math, and they tend to use the practical applications of science or math versus sitting down and doing derivations or other technical problems.
- What are some examples of private sector jobs?
    - Working for a consulting firm or private forecast firm. You can also work in specific industries as a meteorologist, such as media or a major corporation.
    - I don't have much experience with this, but the friends I know that have worked in the private sector have usually been employed by private forecasting companies like AccuWeather, WeatherBank, etc. I do have one acquaintance who works for the Iowa Department of Natural Resources making air quality forecasts. Another old friend of mine started his own company (with two other meteorologist friends), they do contracting/consulting for various commercial enterprises, providing forecasts and model data tailored for their customers.
    - TV, and private firms such as AccuWeather and WSI, which is part of The Weather Channel. There are other small firms as well such as Freese-Notis in Des Moines.
    - I'm not too familiar with what industries utilize meteorologists, but some that come to mind include wind energy companies, airlines, air quality bureaus, and possibly some road condition forecasting companies & DOTs. Then there are of course television stations and general weather forecast companies like AccuWeather.
    - Private consulting, energy companies, research and programming in meteorology, private forecasting jobs; airlines, government related air quality jobs, media meteorologists.
    - I don't have a good feel for it since I've only ever worked for the NWS. Some of my friends work in the media or for private companies like wind turbine makers or other companies who have an interest in weather or air quality. The Air Force Weather Agency (in Omaha) also hires civilians.

    - TV met, private company forecaster (can include 511, weathereye, meteorologix, etc), airline met, working for large utility/commodity looking at futures/trading things, oil companies hire mets, seasonal forecasting for many large companies to know when/what to stock stores, etc.
- What is the main thing meteorology jobs look for when hiring someone?
    - Each office looks for different skill sets, depending on what the office needs. Same is true in the private sector.
    - Every hiring official is different, so there is no standard answer. Some are focused on scientific knowledge, academic experience, etc. Others are more interested in personality traits, ability to work with others, and so forth. When you apply for a job it's luck of the draw in terms of what that particular hiring official will be working for.
    - I feel a shift in this area is occurring right now. As computers continue to evolve, eventually we will be doing less and less of the forecasting and more of the forecast interpretation for the public. The days of sitting in a cubicle or workstation and gluing yourself to analyzing weather maps and charts all day are going away and being replaced with interacting with people through social media. So there will be a gradual increase in companies/organizations looking for people with good communication skills and good social media/public interaction ability.
    - Work experience and participation in meteorology field work, projects, research, etc
    - That honestly will depend on the hiring official. In general though, they will look for someone that is a "go-getter" and tries to set themselves apart from the rest. Show that you are motivated and care about your job. Getting involved in various department projects and volunteering at your local NWS office while in college are good steps to help set you apart. It is also very important to network with people in the industry that you wish to apply to. Hiring officials are more likely to hire someone who has good, trusted references. These days, 200-300 people have been applying for NWS intern jobs and you need to do everything possible to stand out from the crowd.
    - Skill base + attitude would top the list. Skill base is usually developed by both experience and ability to engage in projects/activities that might fall outside of the normal work hours. It always depends on the position in question – so do your homework and prepare to "know the job you are applying for" as well as the specific office/organization.
    - I would say for entry level probably experience, but I don't know.
    - As for the NWS it centers more on the person as a whole wanting a well-rounded person and looking at your personality, character, motivation and career aspirations in addition to a strong foundation in meteorology.
- How "family friendly" is a job in meteorology?
    - Though it has improved, it is limited as you are at the whim of nature.
    - I can only speak for NWS employment, which has its pros and cons. The biggest con is, of course, the rotating shift work as well as the occasional overtime (severe weather, short-notice shift coverage, etc.). This can be trying on families. On the other hand, there are also many advantages in this area. For example, NWS employees have excellent job stability and good pay and advancement opportunities, providing financial security for their families. We also have excellent leave benefits, both in terms of vacation time and sick leave, the latter of which can sometimes be applied to family

needs (i.e., taking a day off to care for a sick child). Our insurance, retirement, and other benefits are also very family-friendly.

- Since weather happens 24/7/365, most weather jobs will require working outside of a standard 9-5 Mon - Fri. Especially early on in your career, plan on working weekends and holidays. I know of a few "work from home" type jobs, but the main job sources of broadcast wx and the NWS will be a constant rotating schedule. In TV, the goal for most is to make it to a chief meteorologist position. Depending on the station, the hours for this job will be ~2:15 - 10:45 Sun-Thu or Mon-Fri. This means that dinner with the family will not happen every day of the week, and if there are evening activities, they will likely have to be missed. Additionally, NWS and broadcast media jobs usually require you to move 1-3 times in your career if you wish to be promoted, which could be hard on families. In the end, most meteorology jobs are very family unfriendly, and at some point, you will probably have to make a choice of which is more important to you: family happiness or career happiness?
- Not very. You work nights, weekend and holidays. You only get 2-5 weekends off.
- I'll defer to those with a family to better answer that question.
- Given some of today's flex work schedules in various careers – and keep in mind that the entire rest of the world doesn't have this option either – meteorology can be considered a less family friendly job than perhaps, some other careers. You are on call – sometimes 24 hours a day. You have rotating shifts in operational forecasting careers. In media – you work odd hours and you have additional obligations to "promote" yourself and the station you work for – all a part of your expected work which is included in a salary – not normally paid in overtime or additional time off. You will need to make the most of your time and make time for family. There are typical family life benefits that most employees are entitled to and some additional here – life Family Friendly sick leave and the ability to bank sick leave forever.
- It depends on what you do and how your family life is or what you expect from your family life. If you go into the NWS and you want to be a parent who goes to every sport event, school concert or PTA meeting, that's not going to happen. If you want to be at every big family gathering, especially holidays, that's probably not going to happen either. It just depends on how traditional of a family life you want to have as to how family friendly it is. For career advancement you have to be willing to move, most likely to another state. If you're not willing to move away from your family or to move your family the NWS is probably not for you.
- Most of the offices I have worked at have been "family friendly" in that they understand each employee has a life outside of the job and try to have everyone be able to take time off to be with family as much as possible. They have been understanding during times of family sickness or death. From a female perspective it has been good for having children. Your sick leave can count toward paid maternity leave for 6 weeks in addition to using the 12 weeks of FMLA time off (12 weeks of unpaid leave if you wish to use). You can then use your vacation time to have more time off if approved as well. You also get up to 40 hours of family friendly sick leave per year to use if you have a sick kid or a spouse has surgery, etc. These are both things that many private companies do not offer.

- **Graduate School**

- Is going to grad school worth the time and money?
    - For me it absolutely was. Not only did I learn a lot in graduate school, but getting my Master's degree also greatly aided me in getting a job in the NWS, which is becoming more and more competitive all the time. Even after I got in to the agency, having a Master's provided me with a higher initial salary and can also provide an advantage when applying for promotions further down the line.
    - In this day and age, yes. There are so many job applicants that a selecting official can relegate their choices to those with grad degrees and still have plenty to look at.
    - These days, it is becoming harder and harder to get a good job in the field of meteorology without a graduate degree. I'm not sure what the status of the private sector is, but it is almost impossible these days to get into the NWS without a graduate degree or a bachelor's degree + previous work experience. I personally was 2 weeks away from going to grad school before being offered a job in the NWS.
    - In many cases – yes. Graduate school is as much a training experience to reach a different level of thinking and perspective – as it is just additional education for the sake of coursework. If however, you feel that you have the gift to get to where you need to be or the opportunity immediately out of undergrad school – just weigh the positives of each choice. Looking back – my graduate degree did two things: One - it gave me an insurance policy to more easily switch careers within meteorology and secondly – it gave me the edge when applying for a position. People will always respect your experiences and education – develop both to the fullest and shortchange neither.
    - Did not attend grad school so probably not a good person to answer these questions!
    - If you want to be in the NWS, yes because you may not be able to obtain a job in the NWS without that degree unless you obtain a pathways position. Outside of the NWS, I am unsure how much it is warranted. In my opinion, I do not think it would be worth it if you were going into tv or some certain private forecasting areas.
- How do you decide when and where to go to grad school?
    - I decided at the beginning of my senior year and ended up staying at the same university for graduate school because they had an excellent program there. It is a decision that everyone needs to make for themselves. However, I can tell you that it is very difficult, and becoming more difficult all the time, to get into the NWS without either an advanced degree or some good private sector experience. Hiring people straight out of college with Bachelor's degrees is quite rare now.
    - I didn't go to grad school
    - After I graduated with my bachelor's degree, I took a semester off to assess whether or not I wanted to go to grad school. I also kept applying for any NWS openings that came up across the country. I would probably recommend this for anyone on the fence with deciding on whether or not to go to grad school. As far as where, go to a grad school that fits your interests. Different grad schools have different strengths (ag weather, severe weather, satellite, airborne research, models, etc), so shop around and find the school that fits you.
    - You have to weigh the school, costs, assistantship opportunities, professors you might work with, other people within the department. Think of it as a temporary marriage – just like jobs and relationships – you need to feel at home and find

people who can both guide you and help you mature as an individual as well as a scholar.
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- In general, is getting your masters degree better than getting a job right out of undergrad? Does it significantly increase your odds of getting a job?
    - These days, you are unlikely to be selected without at least a masters degree.
    - It depends on your aptitude for school and your financial needs. Some people find the idea of graduate school courses too daunting, and/or need to start making money immediately due to their financial situation. For these people, getting a private sector job to build experience might make more sense. For others, college coursework is fine and they don't have immediate needs for a salary, so they opt to stay in school and increase their degree of education as well as their future earning potential. As far as which is better for getting into the NWS, it depends on the hiring official. Some place more value on experience while others value advanced education more. However, having a Master's Degree is probably a little better for overall salary earnings over the course of your career.
    - Yes. See above. It's very difficult without a graduate degree.
    - That really depends on the job you want. My opinion is, if you can get the job you want without getting a graduate degree, then go for the job. Speaking about NWS jobs, it used to be relatively simple for those with bachelor's degrees to get hired. However, during the hiring freeze in the last few years, those students that would have applied to the NWS went and got their graduate degrees. Thus, this new influx of applicants have, at least temporarily, set a new standard for those who wish to apply, and it is very hard right now to get a job in the NWS with just a bachelor's degree (though adding work experience and NWS volunteer time on top of a bachelor's degree does increase your odds of getting a job).
    - It depends on the economy, your skills, and aspirations. It can help you get a job if the conditions are right. I went on to grad school because the economy was terrible – that was many, many years ago. Life is full of hard choices and has always been. Not lecturing here – but you will make it if you persevere. It's up to you!
    - Again it may for the NWS given the competition that is out there at this time. For other areas, not sure.
- Where did you go to undergrad and grad school?
    - I earned both my Bachelor's degree and Master's degree from the University of Oklahoma. It was an excellent experience.
    - Iowa State undergrad – Grad school n/a
    - I went to the University of North Dakota for undergrad. I did not attend grad school.
    - "The" University of Wisconsin – Madison for both. Ha – I couldn't resist. Lots of good schools out there. Be proud, wherever you are and wherever you are going!
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- If my end goal is to end up at the NWS, what is your opinion of what I should do (grad school, apply right out of undergrad)?
    - If you want to get into the NWS, I would strongly encourage you to earn your Master's degree, and if not that, to work for the private sector first to build experience. Of course there is nothing wrong with applying for NWS jobs right after earning your Bachelor's degree, but it is very difficult to get in via that route. Some intern openings

in the NWS have over 100 applicants and you are competing against all of them for that one spot, so you need every advantage you can get.
    - Go to grad school but continue to get experience in field projects, research, volunteering, etc.
    - It depends what you did during your undergrad. If you were not actively involved in the department, research projects, or volunteered at an NWS office, then your chances of getting hired are very remote. Going to grad school might be your only choice then if you wish to be competitive with the NWS applications. But even that might not be enough; you must take steps to stand apart from your fellow applicant. With hiring officials now regularly having 200-300 people apply for a single opening, they have a wide range of well qualified applicants to choose from and you need to get on their radar, so to speak.
    - Tough call. Within the next 5 years – there is an expectation of a third or more of NWS employees might be ready to retire. On the other hand, the organization may take some steps to cost save and reduce employee count. If it were me – I think I would get the added degree. Like I did, you will have more options if you do. In real estate, it's location, location, location. In life, it's options, options, options! Think football.
    - I would try for a volunteer position and definitely a pathways position regardless of location. I would most likely go to grad school and still apply for NWS jobs while attending grad school.
- What studies are most applicable in grad school for the NWS?
    - Having a Master's degree in meteorology will mean much more than the specific subject that you specialized in (i.e., your Master's thesis topic). However, in general topics that can be applied to operational meteorology may be slightly more valued.
    - I don't think selecting officials are looking for anything in particular.
    - Those that involve mesoscale/synoptic meteorology, satellite/radar interrogation, climate, and GIS. Other fields are important to the field of meteorology, but at this point are not too useful at the WFO. There are other careers in NWS modelling centers that deal with microscale modelling and other research fields.
    - Again – you might need to consider your goals. Research requires a different set of skills than say, operations. However, there's a lot of overlap in education and in a job at the NWS. Dynamics, synoptics, hydrology, modelling, computer science, public speaking, technical writing are all good. If you want to do something specific when you graduate – then you might get interested in air quality, social sciences, environmental policy, other some new combination of skills to create a career yet undefined.
    - Meteorology to get you into the agency. In addition, an MBA or management courses can help as can public relations and hydrology courses.
- What is the best way to prepare yourself for grad school as an undergrad?
    - This is a tough question to answer. I guess the best thing I could say is that you should be prepared for harder courses, harder exams, more time spent on homework/studying, and more responsibility within the program. For instance more will be expected of you and you may even pick up teaching assistant duties, etc.
    - If you are considering grad school, get to know all of the professors and ask them about what their areas of research are. If you can pick out a professor you like, think

you would work well with, and is researching in an area of interest to you, ask them if there are any opportunities for you to help them out. The professor may be under a large grant and could have an opportunity to pay you in the $10ish/hour range to help them out. What you are helping them out with could even turn into your Master's Thesis topic if all goes well.
    - n/a
    - The same things they tell you in high school when preparing for college.
    - Master the basics and dabble in different topics to see where your interests might take you. Be sure to talk to professors, graduate students, and recent grads to see how things fit together. Quiz other professionals about their experiences – like this – to better understand your goals, your skill base, and direction in grad school. Don't be afraid to take courses that interest you, if time permits – even if outside your scientific interests. You'd be surprised how most things are somehow related and having that different course gets you thinking along different paths and can give you and edge in your career.
    - Be active in many activities, get in touch with a good research topic for your senior thesis that can be expanded upon in grad school.
- **<u>Setting Yourself Apart</u>**
- What programs should I look into applying for to get accepted into a job with the NWS?
    - Student volunteer or the Pathways program.
    - Anything that can separate you from the pack of applicants for NWS jobs is a bonus. This may entail volunteering at a local NWS office (even just on your summer break) or applying for the Pathways program, which hires a small number of college students as part-time employees each year but is competitive to get into. Otherwise any kind of extra research or job-related experience is a plus.
    - Scholarships (Hollings), things like TWISTEX, etc,
    - I'm not 100 percent sure about this question.
    - The best way is the Pathways program.
    - Pathways program, volunteering at an office, Hollings Scholarships, private company experience
- What is the best way to get an internship with the NWS?
    - Achieve as much as you can in your academic career, including a Master's degree if feasible, and/or get experience in the private sector or through NWS volunteering. Be willing to apply for NWS intern spots at any office where they come open – these jobs are so competitive that you can't afford to be picky and sit back waiting for your dream office to open. Apply everywhere you can. Also be sure to show hiring officials that you will be a good employee, responsible and working well with others.
    - Grad school, experience and participation in research, activites
    - Pathways at this point. Being a volunteer is another good way to pad your resume.
    - When you see an opportunity – apply. Get organized and apply to more than one office, if you have the ability to do so.
    - Again, the Pathways program. Though being willing to go wherever to work as an intern is critical. The less desirable sites have fewer applications so your odds are greater for getting hired. If you're good, you'll only be there a few years. Trust me, you can survive it!

    - Be outgoing and have many things on your resume, volunteer at an office, network with many NWS contacts at conferences or visit your local office, pick a NWS person as a mentor for your thesis.
- Where can you get experience before getting into the NWS?
    - If you can obtain employment in the private sector as you continue applying to the NWS, it does help you in the selection process. I had 6+ years coming into the NWS in the private sector.
    - Outside of the NWS, your best opportunity to get experience that will help you get into the NWS is working for the private sector, whether it be a private forecasting company or some other company that has in-house meteorological employees.
    - TV stations, and graduate research
    - Private sector, TV, NWS volunteer, etc.
    - Any job or internship associated with meteorology would do. Look for opportunity and be creative.
    - Volunteer at the NWS. Get involved and be very active with all professional organizations you can.
    - Volunteering at a NWS office, Pathways program, job shadows, you could try to see if they have internships available at private companies that are near your location. Other options are getting other jobs in television, private sector, or the military to get experience for the NWS.
- Which extracurricular activities benefitted you the most in undergrad?
    - I actually didn't have a lot of extracurricular activities as an undergrad – at least not the kind that would help me get a job. I would say the only way such activities would matter to an NWS hiring official would be if they demonstrated good leadership, work ethic, or other such personal traits. Being involved in student AMS/NWA chapters could be a plus too.
    - Honestly, AMS didn't do much. Do things outside of your degree to network and learn how to deal with people. You never know when you may leave the field and need a contact to get into another door.
    - Being involved in department projects and the student AMS chapter, on top of volunteering at the NWS and being a Hollings Scholar.
    - Anything that develops leadership, fellowship, and takes you away from the routine grind of education. Having a part or full time job is a good experience. Though stressful, you might find you accomplish more, develop time management skills and become a better student all at the same time.
    - Unknown
    - Just showing involvement in many activities shows you have motivation and drive to go above and beyond set standards. Otherwise being a part of the ISU AMS and Central Iowa NWA helped a lot to gain some experience and meet people in the profession. Team involvement and leadership positions are direct questions on some NWS job applications.
- What can I do to set myself apart on a Pathways application?
    - I am not familiar with the details of the Pathways application process, but I would say you could distinguish yourself either through outstanding academic performance, through extra experience that other applicants don't have (extra research projects, etc.),

or through demonstrating superior personal characteristics such as leadership, adaptability and work ethic.
    - See all the things above.
    - Be involved in your department and take advantage of any opportunity to pad your resume. Having NWS references also helps greatly.
    - Never underestimate anything you have done – seemingly small accomplishments in your eyes might showcase some talent that other's may not possess.
    - No basis to judge
    - Be active, be involved, try to take up every opportunity to get more experience in meteorology, leadership, unique serving opportunities to show motivation and drive
- What was your foot in the door with the NWS?
    - I simply applied for every intern opening in the country, regardless of location, until I finally got one. It took a while, and it's even more competitive now than when I started. There is no "magic bullet" as far as something on my resume or in an interview that got me the job, at least not as far as I know.
    - Luck. I entered during modernization in the early 90s when the NWS was in a huge hiring surge. I volunteered and talked to the local MIC. That's what it took back then.
    - I was a NOAA Hollings Scholar during my late undergrad years and volunteered at the NWS office in Grand Forks, which allowed me to network with people in the agency which ultimately gave me good references that got me into the NWS.
    - I moved to Alaska! Actually – the graduate degree and my 14 years of experience in media probably set me apart. Any reasonable offer you get – take it – if you want a job in the NWS. Apply only to those locations you are interested.
    - Pretty sure the chair of my department had crazy connections with the NWS that I benefited from.
    - Mine was a combination of the following activities: volunteering at two NWS offices, interning at a tv station, working as the lab monitor in the meteorology lab at ISU, involvement in ISU AMS & CINWA including holding leadership positions and being near the top of the class with my grades to create a solid meteorological foundation.
- What are the best things to do post-graduation to land a job?
    - Volunteer with the NWS, get experience in the private sector, or in some other way show that you continue to grow as a meteorologist between school and NWS employment.
    - Don't be shy about where you apply. Apply for any openings out there to get your foot in the door.
    - Stay focused. Try to find something related to weather – even if it is not your ultimate goal. Find ways to improve and stay relevant. This is true throughout your career.
    - No basis to judge
    - Stay involved and relevant. For the NWS apply to any opening in any location just to get in the agency and then on your next move you can be more selective on locations. The key is to become a status applicant, meaning you are in the agency applying on positions. This may include applying to Alaska or USA territory NWS positions, applying to Hydrometeorological Technician jobs under the 1341 job

series, applying as physical scientist positions under the 1301 job series, or even hydrology jobs (not sure of those job series numbers).

- What is the best way to get a job at the NWS besides pathways?
    - Either through being a NWS student volunteer, getting your Master's degree, private sector experience, or some combination of these.
    - See all the things above.
    - Hollings Scholarship and volunteering at an NWS office are good starts.
    - No basis to judge
    - Same as listed in some of the previous questions.
- **<u>Other</u>**
- Do grades matter a lot when getting hired for NWS or is it your experience that matters more?
    - A lot more has to do with experience and intensity of interest in the job.
    - Grades make some difference, but unless you're at one end of the spectrum or the other (say, constant honor roll or barely passing) everything in the middle (mixture of A's, B's, C's) is pretty much all the same in which case experience and resume-building matter more.
    - Grades need to be good to even be considered. Then experience gets you hired.
    - Yes, and no. Everything builds upon itself. Your grades in high school matter when you get into college. Your grades in college help you get the first bit of experience, whether it is through department projects, an NWS volunteer, or scholarship/award. These in turn will pad your resume. So yes, NWS applications and interviews are heavily weighted towards your experience, but that previous experience is dependent on your grades. SO do good in school!!
    - Both matter. Attitude is key and willingness to work hard.
    - No basis to judge
    - It is both, because an initial scan might be just to rule out the people with lower grades with the hiring manager then digging into applications to look at your experience.
- Can you please expand on the phrase "It's about who you know, not what you know"?
    - I've always considered this phrase somewhat misleading. It would be more accurate to say, "It's about who you know, not *just* what you know." Knowing your meteorology and having a sound educational/experience background are very important. However, also having a connection in the NWS – meeting the hiring official at a conference, having a friend who works at their office, whatever – can definitely help you get your foot in the door.
    - We've had dozens, likely over 100, ISU volunteers come through here in my career. I immediately forget 90% of them because they don't make an impression either way. The ones with a bad attitude, are cocky, or disinterested make up 5%. Get yourself in the last 5%. Be somebody that seems to have a passion for what we do and we'd like to have as a respected co-worker.
    - Having good, solid references in the field you want to go into is an immense boost to your application. In the NWS, chances are good that the hiring official will know a large number of people in other offices. If you can make a good impression as a volunteer at an office, the officials at that office will vouch for your good work and this means more to the hiring official than what you put on paper. Because, let's be honest, on paper you will likely look the same compared to the other 200-300

applicants. Having that reference will give your application that extra boost that might land you the job.

  - Sure – knowing people is a great way to get recognized and become familiar to them. Someone that knows you may be more comfortable in a hiring situation and you get the job. However, strong recommendations from people you work with and for, those who are respected by their peers (at the hiring level) is also important. You need to be sufficiently capable for any job to get someone's attention. Getting your name out there helps – but it shouldn't be your only goal.
  - Unfortunately, in just about every industry everything is so competitive that having good relationships are key to getting ahead. Think of it like this: you and two other people have made the final cut for a job and are nearly equally qualified. Most likely the tie breaker will come down to your recommendations. And, more specifically, it will likely come down to a recommendation from somebody the hiring official trusts. Either one of their friends or somebody in the industry who has a good reputation within the industry. Also, if you have really worked your behind off and done good work and have impressed somebody within the industry, you'll be surprised what they may be willing to do to help you get what you want. They may know the hiring official and may be willing to make a call to speak with them. Somebody the official trusts saying, "They're awesome!!!" is going to carry WAY more weight than you saying "I'm awesome!!" Or somebody the official doesn't really know, or for that matter somebody they don't like or trust. Now, mind you this is all dependent on you having impressed the people who will be your recommendations, what you know is critical, but it's not enough. And if you want a job in a particular place/field/business go get yourself in front of people in that field/place/business. Otherwise you probably won't get in.
  - It is about who you know, but it is also about what you know. When it comes to who you know, you might have a hiring manager looking at two different applicants that are similar in experience and qualifications. They then may select the person they have met or know through a good friend/recommendation versus the person who is unknown and did not come with a known recommendation source. However what you know is important as it is what gets to the point of even being considered a final applicant in the first place.

- What is one thing you wished you knew as an undergrad?
  - I should have taken more time to enjoy the college experience. I didn't get out enough and spent too much time either studying or watching TV. While studying and achieving high academic experience is important, you should also make sure to try new things and enjoy your friends while you can.
  - More computer knowledge. I have a Comp Sci minor, but should have pursued it more. You need to learn Linux and script programming.
  - Something I wish I had done as an undergrad is taking GIS courses. GIS skills have become very useful in the NWS and are an asset to possess.
  - Answers to the questions here! OK – so I was told "you'll never make any money in weather – get out now." Thank you college teaching assistant! In some respects – this is true and he was right. But – your career should be your passion – money follows passion. Passion doesn't follow money in careers! You can take many different roads in meteorology and do very well.

    - What I wish more undergrads understood: You're going to have to make sacrifices now to get what you want. What you do in college determines what you will do after college. Take every opportunity that comes you way that allows you to interact with others in the field or to better yourself in the field. Yes, this may mean giving up a fun summer job at camp to do an unpaid internship during crappy hours at KXWZ station. Do it. Do it with a smile. Show up, be polite, dress nicer than everyone there, ask questions, never imply that you know more than them, be interested. Even if you're not interested, pretend you are. Be dedicated. Never skip on your commitments with those in the field. They will be there, whether you show up or not. If you want to be them, you need to prove you're just as dedicated as they are. And once you've impressed these people don't be afraid to reach out and ask for help from them when it comes time to getting a job (or advancing). You'll be surprised the lengths some people are willing to go to for you if you just ask. The worst that's going to happen is they might say no. Use the resources at school too. The career center is an amazing resource. Use it.
    - To take up a major other than meteorology in addition to meteorology so there would always be another option if my life goals changed down the road. I love my job, but there have been a few times that I could see myself doing something different to have a more normal work schedule or be able to take time off to spend at home with my child and then return to work at a later date. This is not completely off the table in the NWS, but you will likely have to work your way back up the ladder and start off in unfavorable locations again to get back in the NWS if you were to leave for a few years.
- What's an interview with the NWS like?
    - It depends on the hiring official, there is a wide range of interview styles. However, the majority of them will be somewhat casual and you will get a variety of questions on meteorology, your background, personality traits, etc. It is important that you set yourself apart from your competition for the job. The interviewer(s) will know your accomplishments from your resume and will mostly be looking to try to get a read on what kind of person you are. Do you think well on your feet? Do you have a pleasant personality and the right sense of humor? Are you good at talking to people? Everyone who gets to the interview stage will be qualified on paper, so a good hiring official will be using the interview to make sure they're hiring someone who will be a good employee.
    - Unknown. I haven't interviewed.
    - Depends on the hiring official. They are generally short (30 min) but can be longer. They may ask you to expound on certain answers in the application. It is generally conducted by 3-4 of the management staff at the WFO. They are all conducted over the phone.
    - About 60 minutes and they are all different. Usually you answer a set of interview questions, like any interview. However, all NWS interviews are done by phone.
    - Very intimidating. They have to all be phone interviews. Which means they don't get to see you and you can't read anyone's reaction. You are asked a question, you answer and then there is nothing but silence. Then they'll ask another question. So you get no feedback, not even involuntary feedback like facial clues. It's very

difficult. So you just have to have to keep your confidence and your energy up, even though it's very hard. Practice practice practice!!!

- They are over the telephone and usually consist of 5-10 questions and then they give you time for a few questions. Always try to have a few questions ready.

  Many of them deal with your character and trying to find more out about you versus trying to find out how much you know meteorologically speaking.
    - Examples
        - What is your greatest weakness...and how have you made improvements?
        - What irritates you about other people?
        - How have you addresses a conflict with another coworker or addressed a problem with another person?
        - Who has been your greatest mentor and why?
        - What is your greatest accomplishment and why?
        - Where do you see yourself in 5 years? ...10 years?
        - If you came to this office, what would you bring as far as skills?
        - Do you thrive on internal or external motivation and why?
        - We've read your application and resume, but tell us a little more about yourself.

- What's your favorite 90s rock band?
    - Wow, this is a tough call…I'm old enough that I was just at the right age to enjoy the whole grunge movement in the early 90's, so I'm always partial to that genre. While it's hard to pick just one, I would probably have to go with Alice In Chains.
    - None, unless you count Rush as a 90s band. They've been around since the 70s, so they should count.
    - Well, what's your favorite 90s rock band?
    - During the 90s I was all about N*SYNC. But, as far as actual bands, probably Matchbox 20. And I'm not embarrassed about either of those.
    - Stone Temple Pilots, Nirvana or Smashing Pumpkins
- What do you recommend for people who want to get better at forecasting?
    - Learn all you can from those that are in the field or from senior class members.
    - In addition to studying and taking your homework seriously, be sure to get real-time experience by paying attention to current weather around the country. What interesting systems are out there or developing? How are the models handling these situations? Every event that occurs is a case study that can be used to learn what does and does not work.
    - Figure out what's causing the current weather and apply that to later forecasts. Read all the forecast discussions you can to learn what techniques work for you. Learn to go to those as applicable. You can't look at all the data these days.
    - Practice and take advantage of as many opportunities as you can. Take part in forecast challenges, volunteer at the NWS or other private companies, pay attention in your classes. ☺ Yes, you probably won't use you dynamics equations in forecasting, but the principles you learn will aid you in forecasting.
    - Practice. Make mistakes – but go back and see why you were incorrect and learn from them. You'll never be a perfect forecaster, but you can always be a better

one. Develop your own ensemble of possible solutions and understand the atmosphere and the risk of possible solutions. This can be done mathematically or through experience. Statistics are only as good as the model being examined. Your experience is invaluable. Continuous training and education – research articles, new methods, etc. And - Give up your ego – you're going to lose it quickly enough as a forecaster.
    - Practice practice practice. The Warning Decision Training Branch of the NWS has a lot of their modules online and going through them would be helpful as well.
    - Do research and case studies of events to see the finer details that affect the forecast. Keep training and reading papers on forecasting and different types of events in the area you are interested. If you can take some of the online classes through COMET/ MetEd, they may help too. Talk to forecasters about how they forecast for different scenarios and what parameters they look at.
- What college classes have helped most with your job?
    - Instrumentation, climatology, and synoptic meteorology.
    - In addition to studying and taking your homework seriously, be sure to get real-time experience by paying attention to current weather around the country. What interesting systems are out there or developing? How are the models handling these situations? Every event that occurs is a case study that can be used to learn what does and does not work.
    - Honestly. None. I learned most of what I know from NWS mentors. Meteorology, computers, leadership, I would say the same thing I tell my kids "Associate yourself with people who know more than you" and learn from them.
    - Radar meteorology and mesoscale meteorology. Sadly, my college didn't have a robust program for those going into forecasting when I went there. For what I understand that might be changing.
    - Just a word of advice – have a balanced education. Anything that helps you as a person will help you with your job. Meteorologists who can't communicate and relate to the public and peers are soon to be a thing of the past. Develop skills for the future and now – GIS, public speaking, communications, writing along with strong science is a key part of a successful career. Best of luck!
    - All of my MET courses of course. Computer programming. Any sort of writing class, especially professional writing since so much of what we do is based on communication, and we're the government so it looks *really* bad if we make mistakes. If you are not comfortable talking in front of others or public speaking take a communications class to help with that, public speaking or broadcast meteorology something along those lines. If you work in meteorology you're going to be responsible for talking in front of people and briefing people A LOT.
    - Met classes for a foundation, but probably the mesoscale met class, writing my thesis/presentation and my internship credits to volunteer at a television station and two NWS offices.