

# Saint John's

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## INSIDE




- 18 Vande Hei ready for liftoff as first Johnnie astronaut
- 26 Family defines Gagliardi's living legacy
- 34 Learning Commons adds a new dimension
- 38 Bell's Benedictine adventure circles the globe

the AMAZING ADVENTURES OF

# MARK VANDE HEI

by Dave DeLand





Mark Vande Hei '89 remembers being 6 years old, looking up at the sky and dreaming little-kid dreams about his great big future.

His first career choice was to be Spider-Man.

His second choice was to be an astronaut.



Even in 1972, neither seemed particularly likely.

“Being an astronaut was kind of like saying I wanted to grow up and be Spider-Man,” Vande Hei said. “I didn’t think that was a real thing.

“I always thought of astronauts as superheroes. I certainly thought it was cool, but I don’t remember feeling like that was a possibility for me.”

That childhood dream is scheduled to become a reality at 3 a.m. Sept. 13 (4 p.m. Sept. 12 Colledgeville time), when the 1989 Saint John’s University graduate blasts off from the Baikonur Cosmodrome in Kazakhstan aboard the Soyuz MS-06 spacecraft along with fellow American astronaut Joe Acaba and Russian cosmonaut Alexander Misurkin.

They will join the International Space Station’s Expedition 53 and 54 crews for a 5½-month mission of “doing lots of science” – approximately 250 research investigations not possible on Earth – before returning Feb. 23, 2018.

Vande Hei will be the first Johnnie in space.

“He’s in his dream job,” said Julie Vande Hei, Mark’s wife of 22 years. “I think he wakes up and says to himself, ‘This is so surreal – I’m blessed.’”

He’ll be taking a few college mementoes with him on a mission that resonates in the Saint John’s community and around the world.

“We’re proud of him,” said Dean Langley, one of Vande Hei’s physics professors at CSB/SJU. “A lot more people have been Spider-Man than astronauts. He sees it as a dream with a future for kids now.”

“It’s a big deal,” added Thomas Kirkman, associate professor of physics and astronomy at CSB/SJU and another of Vande Hei’s instructors at Saint John’s. “It still has a pretty big impact on our students. It’s still common for students to say they’re interested in science because of NASA.”

Launch date will be an even more exciting time for the Vande Hei family, with an accompanying dose of nervous apprehension.

“I’ve seen other people’s launches, and it changes everything when you have somebody who you know (going up),” said Vande Hei, 50. “I can’t imagine how I’d feel if I had a kid or my wife getting on the spacecraft.

“You want to cheer, but you know at any instant it could go from being a very celebratory event to a tragedy,” he said. “It’s a horribly awesome experience. I don’t know how else to describe it.”

Between now and launch time, the Vande Heis are focusing strictly on the “awesome” part.

“I do pinch myself,” said Julie Vande Hei, who will be making her third trip to Russia to watch the launch. “It has opened opportunities that I never foresaw in my life.”

“Every time I get in a NASA jet and fly someplace, I’ll think to myself ‘I can’t believe I’m here doing this,’” Mark Vande Hei said. “These are things that I never expected.”

## Sharing the Story

Vande Hei shared his childhood career aspirations – Spider-Man first, astronaut second – during his NASA interview in 2009.

“He went into his astronaut interview and they asked him that question,” Julie Vande Hei said. “He told them the same thing he told you – ‘I wanted to be Spider-Man.’”

“When he got home and told me the story, I said ‘You did WHAT? Why did you do that?’ But it all worked out.”

Vande Hei also has shared his experience with dozens of elementary school classes,

both in person and via Skype. Those classes will be able to watch the launch live at [NASA.gov](http://NASA.gov).

Questions he receives have recurring themes.

“Everything from ‘How does the bathroom work?’ to ‘Can we land a spacecraft on the surface of Jupiter?’” Vande Hei said. “Even when it comes to adults, the topic is so interesting that you don’t run into antagonistic audiences.”

**You want to be able to tell school kids something that’s going to inspire them to do something great and pursue their dreams.**

"I have brought him in," said Julie Vande Hei, a third-grade language arts teacher in Houston, Texas. "Kids are super excited about space. They love seeing the footage of where we think we're going to go. It's exciting all the way around when Mark comes to visit the school."

Space food is also a popular classroom discussion topic. It's mostly canned, powdered or dehydrated, which means Vande Hei – who will turn 51 while on the space station – won't have a birthday cake.

"In general, things that make crumbs are bad for space," he said. "Fresh food is a rare thing, but it's appreciated when it comes up. I've seen pictures of crew members with a bunch of oranges and apples floating around them because a cargo spaceship just showed up."

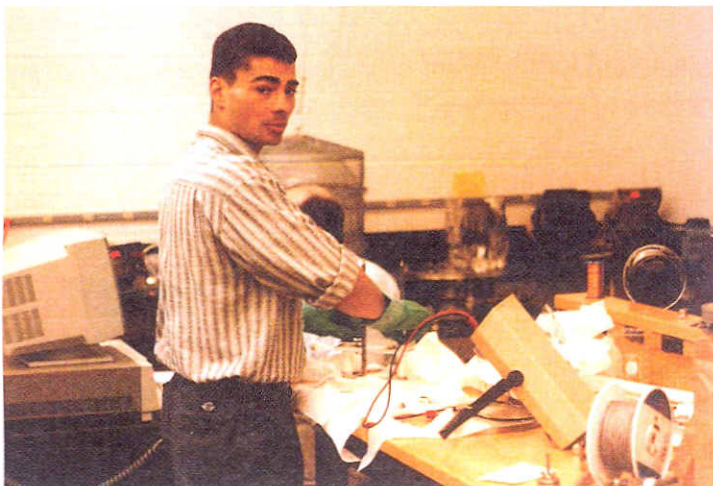
Vande Hei rarely fields a question about where he went to college, even though Saint John's played a major role in setting the stage for outer space.

## Collegeville Roots

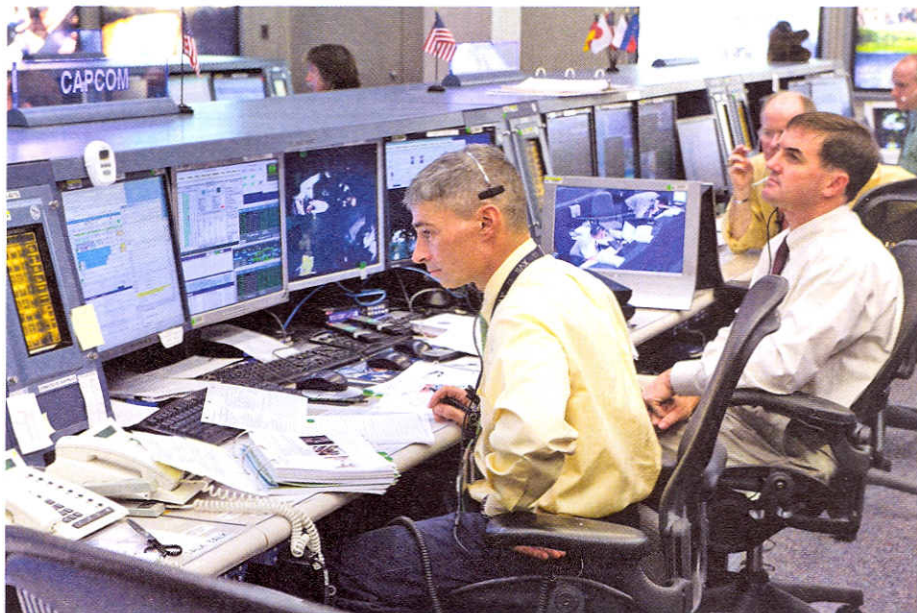
Vande Hei came to Saint John's from Benilde-St. Margaret's High School in St. Louis Park, Minn., on an ROTC scholarship in the fall of 1985 and made an immediate impact on the faculty.

"He was really gung-ho on ROTC," Kirkman said.

"He always looked for what's the hardest thing he could do," Langley added. "Physics was one of those. ROTC was one of those. His basic motivation was always to do the difficult thing."



**Vande Hei arrived in Collegeville in 1985 on an ROTC scholarship and immediately impressed his professors with his diligence, maturity and dedication.**



**Vande Hei was selected in 2006 to serve as a Capsule Communicator in Mission Control, Houston, for Space Station Expeditions 15-20 and five space shuttle missions.**

"Maybe that's just indicative," Vande Hei said with a laugh, "that they had their back turned to me while I was falling asleep."

Fat chance. The guy who arrived in Collegeville 32 years ago had no thoughts of being an astronaut, but he was very driven.

"I was a kid who felt like this was real life all of a sudden, and what I was doing really mattered," said Vande Hei, a physics major who characterized himself as a decent student and a tireless worker. "I definitely worked my butt off back then."

"I actually did extra homework in my classes. It hadn't even occurred to me that I wanted to be an astronaut someday."

But he poured the foundation. Part of that included his faith and a Benedictine approach that has helped Vande Hei through a life and career that has taken him all over the planet, and soon beyond.

"I think that's probably true," he said. "I would say there's an attitude of being willing to accept what is that maybe I'm carrying forward from Saint John's."

"Mark had a focus on what he was supposed to be doing," Langley said. "He was not easily distracted from his goals."

## Getting the Call

Even if Vande Hei had never been an astronaut, Saint John's launched him on a rich career.

"To be quite honest, I think I've been incredibly blessed," he said. "You want to be able to tell school kids something that's going to inspire them to do something great and pursue their dreams."

Vande Hei was commissioned in the U.S. Army in 1989, rose to the rank of Colonel and served as a combat engineer during two tours of duty in Iraq.

"I think our military past helps us, because he's done a lot of dangerous things in his lifetime," said Julie Vande Hei, who married Mark in 1995. They are parents of 19-year-old twins Lauren and Gabe.

"The guy's a risk-taker. I guess I've learned that I have to allow him these opportunities."

Vande Hei was sent to Stanford University in 1997 to get a master of applied physics degree so he could teach physics in 1999 at the U.S. Military Academy at West Point.

In 2005, the Army opened up a new field called Space Operations. The little kid inside Vande Hei was intrigued.

"I didn't really know what I wanted to do when I grew up," he said. "Of course that whole 6-year-old (astronaut) thing came up once again. I was just blown away."

"At the time he was picked up, he and I were both talking about how he would retire and become a teacher and we would just go off to some mountain village and live happily ever after," Julie Vande Hei said. "Because we never believed it would happen, of course.

"And then all of a sudden it happens."

In 2006, Vande Hei became a Capsule Communicator in Mission Control, Houston, for Space Station Expeditions 15-20 and five space shuttle missions.

Three years later, he and eight others were selected out of a field of 3,500 applicants for the 20th NASA astronaut class.

"I think one of my strengths going through that (selection) process is I didn't let myself believe it would really work," Vande Hei said. "I know myself well enough to not think of myself as a superhero."

And yet, against heroic odds, the kid who wanted to be Spider-Man was headed for space.

"I can remember the day he called me," Julie Vande Hei said.

... against heroic odds, the kid who wanted to be Spider-Man was headed for space.

"I threw the phone into the air and went screaming right out of the house.

"The odds of getting that job are so long. To have it happen is amazing."

## Preparing for Space

Vande Hei completed astronaut basic training in 2011 and served as the Astronaut's Office Director of Operations in Russia in 2012-13.

His Russian? It's not bad.

"I would say it's pretty good. It's constantly improving," Vande Hei said. "But every time I think I've got it down, I get humbled."

He returned to Houston in 2014 for two weeks of NASA Extreme Environment Mission Operations (NEEMO) underwater training, which simulates what some of the conditions would be like in a spacecraft orbiting the Earth.



**Vande Hei was one of nine selected out of 3,500 applicants for the 2009 NASA astronaut class. His subsequent training in Houston has focused on replicating situations he may encounter while serving on the International Space Station.**

Vande Hei also trained for space walks in the Neutral Buoyancy Lab, a 40-foot-deep pool that replicates conditions outside the space station.

"It looks like a science fiction movie," Vande Hei said. "You're looking at a full-scale mock-up of the space station and there are divers moving parts all over the place."

Weightlessness training took place during a power dive in a large aircraft.

"Basically, the aircraft dives toward the ground

and you're all falling together," Vande Hei said. "It feels like a room that gravity's been turned off in because you're all floating."

There also was lots of time spent working on flight simulators, which replicated worst-case scenarios.

"We'll have simulations where there's a fire," Vande Hei said. "There are no flames, but smoke will start coming out of the console and then we'll have to react to it."

Vande Hei's calm Benedictine demeanor helped in all of that. It also helps in situations where he's spending extended time in close quarters with other astronauts.

“As the space flights got longer that’s been paid more attention to,” Vande Hei said. “All the people that got hired in my class and the class that got hired in 2013 – they’re all great people to camp with.”

Astronauts Vande Hei, Acaba and Misurkin will be sardined together aboard the tiny Soyuz capsule for the six-hour flight to the space station, which has been permanently staffed by rotating crews of astronauts and cosmonauts since November 2000. The agreement between the U.S., Russia, Europe, Japan and Canada runs through 2024.

“It’s cozy,” Vande Hei said. “You sit in the fetal position so that there’s enough space. I’m pretty confident there are no 300-pound astronauts.”

## Calming the Nerves

Even with all that training and preparation, launch day is a nerve-racking time for astronauts’ families.

“I’ve spoken to some women that have gone to launches, and they warned me,” Julie Vande Hei said. “They said, ‘You need to understand that when it first goes off, you feel as though it’s exploding.’”

“It’s pure terror you’re going to feel. But then you’re going to be OK – it’ll go up, and that sound decreases.”

“I’m sure my wife is (more nervous than I am),” Mark Vande Hei said. “It’s harder to watch anything when you don’t have a sense of control over the situation.”

“I spent so much time in the military that it’s just a fact of life that you’ve gotta be ready for that type of thing. But I have a lot of faith in a system that’s trying really hard to make sure I’m safe.”

Related discussions have brought them closer together.

“We definitely have been spending more time focusing on each other,” Vande Hei said. “It’s been a good way to strengthen our relationship lately.”

Soon, the mission will take them farther apart than ever.

## Ready to Launch

Vande Hei’s originally scheduled space flight – slated for March 11 with the Expedition 51 crew – was postponed last October when the Russian co-pilot dropped off because of mission requirements and financial considerations.

That meant Vande Hei had to re-train for this flight, on which he’s now the co-pilot.

“When we lost that second Russian, I had to take on all the responsibilities that second Russian had,” he said. “That’s a



**Lauren (from left), Julie, Mark and Gabe Vande Hei are anxiously awaiting Mark’s Sept. 12 launch in Kazakhstan and International Space Station mission.**

huge additional training requirement for me.”

From October 2016 through February, Vande Hei spent all but three weeks training in Star City, Russia. He was back in Russia for much of the spring and early summer, with a brief break to visit his parents Thomas and Mary Vande Hei in Chanhausen.

And then comes launch day. A sizable family contingent will be on hand in Kazakhstan.

“NASA’s really supportive of getting the immediate family members out to the launch,” said Vande Hei, who will have roughly 15 family members on hand.

“The funny thing is, I’m going to be in quarantine,” he said. “The bulk of the group I’ll see for about 20 minutes.”

They’ll be able to see Vande Hei inside the Soyuz capsule via NASA’s live feed,

which also may include other familiar elements.

## The Rat in Space?

Vande Hei will be allowed to take a few Saint John’s mementoes with him – small ones, anyway.

“When they first told the (physics) department they could have something go up in space, Dean (Langley) said, ‘Take me!’” Kirkman said. “Then he found out it had to be under an ounce.”

A *Saint John’s Bible* print given to him by the school should be waiting for Vande Hei when he reaches the space station.

There’s also something else – a small stuffed animal that can be seen floating inside the Soyuz capsule once it clears

**Vande Hei is scheduled to connect with Saint John’s during his 5½ months on the space station.**

the Earth's gravitational pull, which is a "canary in the coal mine" moment for family members.

"It's definitely a tradition," Vande Hei said. "It's a three-stage rocket. When that third stage cuts off, then you're no longer being accelerated. Once that's done, it's a success. You're in orbit."

"While they're going up, you know when you're watching them on TV that they finally have made it out of the atmosphere because the little stuffed animal floats," Julie Vande Hei said. "What about the Rat on the Soyuz?"

A stuffed Johnnie Rat is among the mementoes Vande Hei was given, although it may not have seniority. Misurkin, the flight commander, is the only astronaut on the flight with young children.

"I think the Russian crew member's probably going to be the one who's going to pick," Vande Hei said.

## Reaching Out to SJU

Even if the Johnnie Rat doesn't make it into space, Vande Hei is scheduled to connect with Saint John's in other ways during his 5½ months on the space station.

"When I was underwater doing that NEEMO mission, I made a point of trying to pick my favorite picture every day and Tweet it," said Vande Hei, who plans to do the same thing from space on his Twitter account @astro\_sabot. "It's a fun thing to be able to share."

He has been approved for a live conversation from orbit with a Saint John's physics class via a NASA Inflight Education Downlink on Jan. 29, 2018. That session will take place sometime between 10 a.m.-1 p.m. Colleagueville time, and the public will be able to view the session in Pellegrine Auditorium.

"There's astounding interest out there in the community," Kirkman said. "If there's a 'talk to an astronaut' program, that auditorium will be filled with potential freshmen."

"It'd be very nice to have the auditorium showing the blast-off. It'd be very nice to have an interactive broadcast from space."

"I would love to do that," said Vande Hei, who has already agreed to be Saint John's ROTC commissioning ceremony speaker in May 2018. "I put Saint John's on the list of people I would like to do it with," Vande Hei said, "but NASA's got their own agenda sometimes. We'll have to see what

works out."

He'll be busy. There are all those experiments, some of which are on the astronauts themselves.

"I am definitely a large guinea pig," Vande Hei said with a laugh. "We're also there to make sure we keep the thing running."

A Vande Hei spacewalk is also a possibility.

"There's a planned one for the tail end of my five months in space, though the timing depends on the arrival of visiting spacecraft," he said. "I'm not hoping that something breaks that requires a previously unplanned spacewalk to fix it, but I'll be happy for the opportunity to help out if needed."

It's the culmination of a lifetime of work and achievement, an opportunity to examine the big picture, the realization of a dream – for everyone.



"There's a little bit of me that's already starting to reflect on what all of this means," Julie Vande Hei said. "I know in my heart beforehand I'm probably going to be a mess. How could I not be? I love my husband. We have a long history together."

"But this is our journey. We're on it. You have to kind of expect that the universe and God have a plan for us, and I have to hand it over."

"I'm really looking forward to that very unique perspective you can get from there," Mark Vande Hei said. "Frankly, I'm just looking forward to seeing what the view is like."

He saw it when he was 6 and still wanted to be Spider-Man.

He sees it now, and he's never been more prepared.

He's an astronaut. This is real. Mark Vande Hei is ready for liftoff.

*Dave DeLand, editorial and content director for SJU Institutional Advancement, is an award-winning writer, guest lecturer at Saint John's University and former columnist for the St. Cloud Times.*

 Watch Mark Vande Hei's NEEMO underwater training video at [sjalum.com/saint-johns-magazine](http://sjalum.com/saint-johns-magazine)

The Johnnie Rat and Spider-Man are hiding elsewhere in this issue. Email the location where they appear to [johnemail@csbsju.edu](mailto:johnemail@csbsju.edu) by Sept. 30 to be entered in a drawing for Johnnie Rat and Spider-Man toys.

